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PETER ZODAC

July-August
1950

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CHIPS FROM THE QUARRY

NORTHWEST FEDERATION CONVENTION
Sept. 2-3, 1950
State Armory, 202 W. 2nd Ave.,
Spokane, Wash.
Columbian Geological Society is host club
Joseph M. Seubert, 1820 W. 26th Ave.,
Spokane 9, Wash. Chairman of Commercial exhibits.

1950 Convention of the Northwest Federation of Mineralogical Societies

1950 Convention of the Northwest Federal tion of Mineralogical Societies at the Armory, 202 West Second Avenue, in Spokane, Washington, Saturday, September 2nd, Sunday September 3rd, and Monday Morning, September 4th.

Hello there, are you raring to come? Then pack up the old car, or the new car, the trailer house, or what have you, and hit the road for sunny old Spokane.

Say, fellows, start the grab bag specimens rollin in to East 3508 Hartson Avenue, Mr. and Mrs. V. O. Daniel, Spokane 15, Washington. We need them as soon as we can get them.

Send in your banquet reservations to Mr. Clarence E. Kline, West 1514 Sharp Avenue, Spokane 12, Washington. Tickets $2.50 per person plus the State tax, total $2.58. Don't forget the banquet will be held in the beautiful Marie Antoinette room of the Davenport Hotel at 7 P.M. Saturday night. The Convention Hall will be closed during the banquet. Door prizes will be given at the banquet.

Mr. George Riddle, East 518 Dalton Avenue, Spokane 13, Washington is waiting to receive your requests for display space. Get your reservations in soon please. If you know of any commercial that would be interested, please have them write to Mr. Joseph M. Seubert, West 1820 26th Avenue, Spokane 9, Washington. Commercial rates are $20 per 3 x 8' table for the full time of the convention. $35 for machinery space.

We will send a booklet to the Secretary of each Club listing hotels, motels and tourist and trailer camps. As these booklets are donated by the Shell Oil Company, our supply will be limited. We also have floor plans of the Convention Hall, advise how many you will actually need and we will mail them to you.

Please get this before your clubs and talk up the Convention for a record attendance. More news later. Be seeing you in September.

Paul N. Brannan, Chm.
1414 York Avenue
Spokane, Wash.

The Mineralogical Club of Hartford Outings for 1950

June 4 — Strickland Quarry, Portland, Conn.
June 18 — Silox Quarry, No. Stonington, Conn.
July 9 — Roxbury, Connecticut.
July 22-23 (2 days) — Paterson, N. J.
August 6 — Canaan, Connecticut.
August 19-20 (2 days) — North Groton, N. H.
September 10 — Diamond Ledge, West Stafford, Conn.
September 24 — Westfield, Mass.
October 8 — Slocum Quarry.
October 22 — To Be Announced.
November 5 — To Be Announced.

Starting Place: 249 High Street, Board of Education Building, Hartford, Conn.
Leave 9:30 on day trips, 8:00 on 2 day trips.
Outing Committee — G. P. Robinson, Tel. 7-9670, Hartford; Ralph Hills, Tel. 6-8158, Hartford; F. B. Rockwell, Tel. 3-9331, Hartford.

Subscriber for 20 Years!

Editor R & M:

Inclosed please find $3.00 which is to renew my subscription for another year. I think it is close to 20 years since I received my first copy and have been receiving the magazine regularly ever since. Wouldn't do without it!

Vincent Giordano
West Orange, N. J.

June 7, 1950

Valuable Aid to Students!

Editor R & M:

Enclose find $1 for which please send 15 copies of your reprint "Key to the classification of rocks." We had some of them before and passed them out as they are a valuable aid to many students.

Harry Bowen
Boise, Idaho

June 9, 1950

REPRINTS AVAILABLE

There have been so many requests for reprints lately that the following bit of information may be of value. They can be supplied and at the following rates:

100 copies	2 pages	$ 3.75
100 copies	4 pages	7.25
100 copies	6 pages	$10.25
100 copies	8 pages	12.75
100 copies	10 pages	15.00

All reprints must be ordered in advance, before the articles make their appearance in print.

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UTAH'S SCENIC SANDSTONE

By MARGARET D. BENSUSAN, F.R.G.S.
8615 Columbus Ave., Sepulveda, Calif.

Finding "sermons in stones" has always come easy to mineral collectors. But even those who have never picked up a rock are wondrously impressed with a certain type of sandstone from southern Utah. This is because its vari-colored grains trace so evident a picture of the West's grandest scenery.

Not long after the material was discovered, a friend brought us a couple of these slabbed landscapes, each mounted vertically in a pair of small wooden "feet." We displayed them in our living room, which, due to various family hobbies, is said to resemble a museum. In competition with so many objects of interest, the Utah picture stone, nevertheless, drew unusual attention from all visitors, followed by a poetical flow of admiration. "Leaves from the Almighty's sketchbook," "stone records of creation," "primeval etchings," "miniatures of Nature's wonderland" are some of the inspired epithets.

Those unacquainted with rocks marvel how "the design goes right straight through to the other side," with a subtile variation in the picture when reversed. Turning the slabs around becomes a regular part of the routine, in displaying these treasures, and proves the suitability of the feet-like stands for this type of exhibit.

One day we heard from the curator of a European museum, asking for examples of any new and unusual western stones of which we might know. The Utah picture stone certainly filled the bill. But these slabs are really "pictures you can live with," and we had lived with ours too agreeably to like parting with them. So I decided to make a pilgrimage to Utah to select more of these masterpieces personally. While I was about it, I would try to get the story of this discovery.

My son Guy, whose special interest is outdoor photography, drove me from Los Angeles County via Las Vegas to the locality in southwestern Utah producing this variety of sandstone. First we sought out Clarence Force, a follower of the lapidary hobby, in the pleasant town of St. George. It is he who worked out the problem of selection and cutting inherent to this particular material. We found him in his western goods store on the main street.

Decorating the walls of his shop are some of Mr. Force's delectable scenes in sandstone. These, as often as not, prolong the job of waiting on the customers for cowboy and Mexican gear, as I found during my visits there. Mr. Force was called upon, time and again, to satisfy someone's curiosity about the local rock phenomenon, and listen patiently to many a "wild surmise." In this unhurried atmosphere, I began to piece out the story.

This type of sandstone was first discovered in 1947, when two finds were made independently at about the same time. It is not possible to say which was first, nor who cut the first slab, a matter which the parties concerned consider unimportant. I. R. Vawdry, a well-known figure of the district around St. George, came across a seam of this material while prospecting for silica sand, with which he supplies several industries. Rock Vawdry, as his friends call him, is a mineral collector, and so always on the alert for interesting specimens. In this unusually marked sandstone, he felt he had something out of the ordinary.

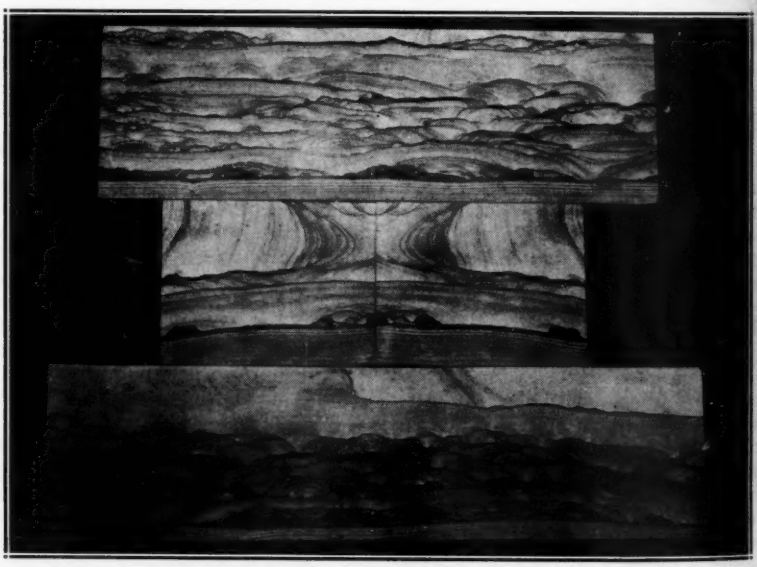
Vawdry lost no time in taking a sample for cutting to his friend Clarence Force. After a slice had been taken off, the two

men stared in wonder at the landscape delineated on its surface,—a facsimile of Utah itself! It was one of those great moments that exalt the life of the rock zealot.

Meanwhile their experience was duplicated by Ed Nisson and his sons Darrell and Ralph, quarry owners and masons of the nearby town of Washington. In the course of quarrying, they uncovered some of the pictorial sandstone, sliced it, and were equally elated with their find. The elder Nisson, whose stone work may be seen in the bridge and tunnel constructions of Zion National Park, dressed some blocks of the novel material to include in the house he was then erecting for himself, of colorful local stones.

To Ralph Nisson, matching and laying slabs of the new stone became a fascination which he has developed into a distinct art. Examples of his pediments, mantels, fireplaces, friezes, and the like, are to be found in St. George, in the state capital, and even as far afield as Los Angeles. Rock fanciers visiting St. George can easily find the Cox Building, the entrance of which shows some panelling of this rock. Making one's interest known to some of the friendly inhabitants can, as a matter of fact, lead to invitations into homes to see other applications. In this way we were privileged to view an exquisite fireplace in the living room of John W. Pace, at El Pace-o Lodge. Striking symmetry for each side of the fireplace had been effected by reversing alternate slabs as they came from the saw.

The architectural merits of this unusual sandstone have been pointed out by F. C. Beck, Utah state inspector of buildings. As an archaeology student, I studied ornamental stone facings in Europe, and later, while resident in South America, I made researches concerning the native marbles lavishly featured in Brazilian architecture. In the light of this observation, the pictorial sandstone of Utah emerges as something new, unique, and very choice in mural decoration. It might well be termed tapestry in stone. As such it has found its way into show places, like the Albert Meyer mansion in Salt Lake City. At the same time, however, a single slab, chosen for its landscape appeal, is, in itself, beautiful enough, and



Three samples of Utah's famous scenic sandstone.

A fine picture of Utah's famous scenic sandstone. (Photo Loaned by Clarence Force)

has the advantage of being portable.

From the Clarence Force collection I obtained some additional slabs, but must confess that, upon getting them home, after viewing the scenic glories of southern Utah, I found it harder than ever to part with the sandstone likenesses. No area ever produced a more fitting natural souvenir.

The artist, however well endowed, runs the risk of being overpowered by the scenery of that district. Near, far, and at middle distance, he is confronted with a wealth of earth forms, florid and grandiose. Here is the most dramatic prospect in America. It excites, compels, makes one restless to explore the labyrinth of bluffs and canyons, impatient to get at the facts of its geology.

Yet all this Dame Nature has managed to portray in the picture stone by means of an ordinary physical process. Her drawing materials were pale buff to whitish sandstone and mineral oxides dissolved in water. Over and over again, through eons of time, she applied her pigmentary washes. Because of the uneven porosity of the rock medium, the oxides, probably iron and manganese, precipitated in a profusion of swirling bands, both fine and heavy. Bold strokes of chocolate-brown limonite outline the main topographical shapes, while a delicate tracery of russet colors, with now and then a tinge of mauve or gray, represents the shading and finely pencilled details. These depictions resemble line cut illustrations printed in sepia, and achieve a remarkable degree of perspective.

They represent the exciting realities of Utah's panorama with gusto; the domes, buttes, moraines, pinnacles, and escarpments, the talus cones, ravines, rainbow bridges, rippled sands, sunsets, and cloud banks, sometimes threatening, or debouching sheets of rain.

Nature employs a different treatment in other kinds of scenic rocks, which are more highly silicified, and hence smoother. In them the colorations that suggest natural objects formed at the time of crystallization. Some of these varieties are more reminiscent of desert views in Nevada, Arizona, or New Mexico, where broad expanses of mirage-brewing flats stretch to rose and purple hills on the far horizon. The effect is sedative.

Being so largely agatized, some of these rocks take a much better polish than sandstone is capable of. Each type of scenic stone, however, is in a class by itself, with its own distinct values for admirers of art in nature.

The sandstone variety, while appropriate for book ends, lamp stands, or other kinds of block type ornaments, is not suitable for cabochons, such as can be made from some of the above rocks. But the Utah picture stone is excellent for making large spheres, which prove strikingly cartographical in appearance. Land masses distend in a broad belt around the "equator," contracting and fading off toward the "poles," like some ancient conception of the globe. Clarence Force has one about eight inches in diameter, for which he selected an especially compact piece of stone. It was made for him by the noted sphere lapidist, Leo Berner, of Glendora, California, whom I later visited to see his magnificent collection of fifty or more, cut from all kinds of stone, including the fluorescent. Among them are several of the Utah picture stone, measuring six to seven inches in diameter.

Visiting the Berner home at the same time was another lapidary hobbiest who is adept at sphere cutting, W. Ellis Johnson, of Claremont, California. He, too, has used the Utah stone for this purpose.

Mr. Berner said that it took him five hours "from scratch" to turn out a large scenic sandstone sphere, the larger the better to show off the panorama. Mr. Johnson pointed out that, although the hardness of this material varies, due to the banding by another mineral, this causes no particular trouble, provided a compact piece with fairly evenly distributed pattern is used.

Mr. Force had told me of his trials and errors in learning how to slab the sandstone, which he now does as a matter of course. Kibitzers warned that it was sheer cruelty to a diamond blade to cut anything so abrasive. Just so it was, but nothing else seemed to do the job nearly

Clarence Force (white shirt, necktie) with Darrell Nisson at quarry near Washington, Utah, loading blocks of scenic sandstone. *(Photo loaned by Clarence Force.)*

as well. After using up a small fortune in saw blades, he acquired the knack of overcoming some of this difficulty.

By careful selection, he is able to cut out those portions of the rock pattern displaying maximum beauty as a landscape. Texture, too, plays its part in the quality and character of these slabs. While the fine grained affords a smoother cut surface, and is less liable to fracture,

some of the coarser material is bolder and more arresting in color and scene, because of greater permeability. To do entire justice to this stone, Mr. Force prefers to cut long slabs, of about twenty-four inches, to display sweeping panoramas, instead of dividing it into small, sectional views.

We visited a quarry where a seam of this material is laid bare in the Chinle formation, of which the hills and cliffs around St. George and Washington are composed. This layer of the Triassic, put down some 150,000,000 years ago, can be traced across the Intermountain Area, and, at Utah's southeastern border, forms the floor of Monument Valley, where we arrived a few days later.

Propecting frequently during our excursion across this vast sandrock territory, we found never a trace of the landscape stone, though, theoretically, it could occur anywhere among the Triassic sandstones of this region. To date only the few outcrops known to Force and his friends have come to light. Elsewhere the banding in Utah's sandstones takes on the patterns of Nevada wonderstone, wavy, concentric, conventionalized, though more delicate.

In the Natural Bridges locality, we showed a sample of Utah picture stone to a ranger, a mineral-minded man who spends his life treading the Chinle level of the earth's crust, and hobnobbing with Nature's handiwork. We had hoped that on seeing our specimen, he would recall some yet unmapped trove of this sandstone treasure. But he had never laid eyes on its kind before. Then and there, in Utah's farthestback corner, our new friend reacted to this rock in the old familiar way—he testified to the glory of a Master Hand.

Editor's Note: Messrs. Berner and Johnson, mentioned in the article, are members of the Los Angeles Lapidary Society and founder members of the Old Baldy Lapidary Society.

AGATE—WHAT IS IT?

By EARL T. CHILDS
R #5, Arlington, Wash.

As a small boy I thought of agates as the pretty banded and clear colored stones we would find in the sand pits.

Now, after having passed the three score mark in years, I have decided that I still have a lot to learn about agate.

In the several books I have read and studied I did learn that agate had a hardness of 7, but in my field and shop work I also learned that all agate did not have the same hardness.

If I can present these facts as questions to the readers, it may be we will all be a lot wiser by learning from the experiences and observations of other cutters.

Why is it that some agate has a conchoidal fracture and others do not?

Why is it that some types of banded or striped agate will undercut in grinding?

Why is it that some agate is softer than others?

Why is it that certain types of agate will take a mirror polish on one face but turn it over and you cannot get a high glossy finish?

Is pure agate colorless like water?

In discussing the above matters briefly, I can say that I have handled and sawed many kinds of agate from many states and that some saw smoothly and rapidly while other types are extremely hard.

Only a few days ago a cabochon I was grinding for a 25 x 18 mm set undercut in the bands so badly that I discarded it.

Not long ago I cut a heel from a pound size stone, it would not take a good polish. I turned it over and cut a slice and it took a high polish. Repeats on the same stone got the same results.

Now someone will rise up and say that I don't know my stones, that many I cut were not agates. If so, then my years of study and work doesn't mean a thing.

Perhaps some of our Eastern States novices or experts may have some controversial views.

THE APPLICATION OF NUMBERS TO MINERAL SPECIMENS IN THE FIELD

By B. M. SHAUB
Northampton, Mass.

The proper labeling of minerals in the field is usually the one thing that is quite seriously neglected at the time; and when one returns from a collecting trip he finds that there are so many things to do that the work of caring for the day's collection is often delayed until the details concerning the occurrence of some of the specimens are lost.

When a record is made at the time of collecting, it is often customary to write a number or description of the specimen on a piece of paper, fold it, and then wrap the note with the mineral in a piece of newspaper. Later when the specimen is made a part of a collection a number can be attached to it and to a card, or placed in a note book or catalog which contains the rest of the data regarding the specimen. The above practice of using a note with the specimen is one that must be followed when collecting wet specimens from a mine or when those collected at the surface are wet. Such conditions, however, are not the usual ones for the average collector.

English in his book, "Getting Acquainted with Minerals," describes the use of consecutive numbers typed on strips of adhesive tape. The tape is first attached to old negative film or tracing linen before placing it in a typewriter and typing the numbers which are cut apart later in the field with a scissors and then stripped from the linen or film backing and attached to the specimen. This method has several disadvantages as follows: (1) The necessity of having a scissors to take care of is somewhat of a burden and adds to the details of making the record. (2) One's fingers are usually well stained from handling dirty materials and when pressing the label onto the irregularities of a specimen the number is more or less obliterated. (3) The number is likely to be rendered illegible if it is necessary to wash the specimen, which is usually the case, before it can be placed in the cabinet.

Instead of typing numbers on the tape one may write a number and the description of the specimen on a wide piece of tape with a soft pencil and then attach the tape to the specimen. This method likewise has some of the objections given above and besides it is much slower which is important, especially when on a collecting trip and the group starts for another locality.

The writer has found that a modification of the English system overcomes the above objections and is much more satisfactory than any other with which he is acquainted. The tape used is preferably ½ inch wide and is likewise attached to the old rejected photographic film or a piece of tracing linen as a backing upon which the tape is arranged in the following manner for typing. The first strip of tape is placed at a convenient distance from the top of the backing so as to insure good operation of the typewriter. The second strip is placed about ¾ of an inch below the first; this is followed by a third piece spaced about 1/16 inch from the second. This spacing is then repeated to the limit of the film or tracing linen, Fig. 1.

The numbers are then typed on the middle of the tape leaving two spaces between each two numbers. The typewriter ribbon should be in good condition and the type clean so as to render legible black figures. When the numbering is completed the film or linen is removed from the typewriter and each strip of numbers is covered with a ½ inch strip of clear, transparent cellulose tape which is pressed firmly in contact with the adhesive tape. The backing is now trimmed along the top of the first strip of tape and along the bottom of the last which should be a single strip. The backing is then cut along the 1/16 inch spaces between the adjoining tapes. This will give a piece of backing with numbered tape along each of the long edges making the numbers readily accessible. The two

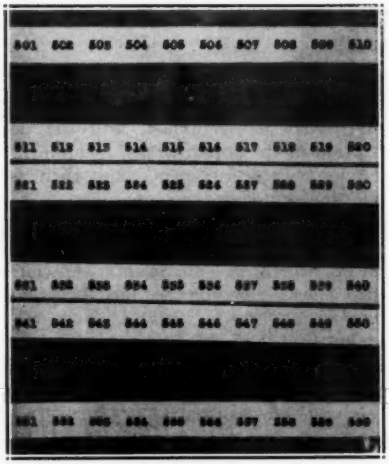


Fig. 1

Adhesive tape attached to a backing of old discarded photographic film or tracing linen. The typed numbers are covered with a strip of transparent cellulose tape to protect the numbers during handling and washing.

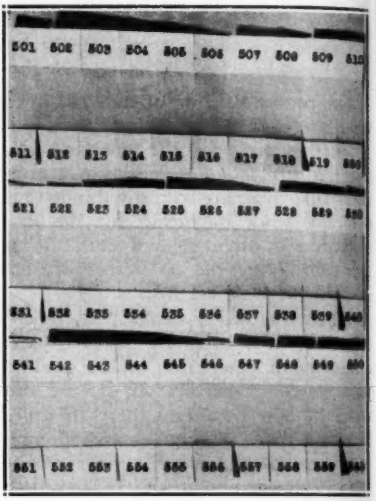


Fig. 2

The backing and numbered strips of tape are cut apart and the individual numbers are separated but still held together and in position by the central part of the backing.

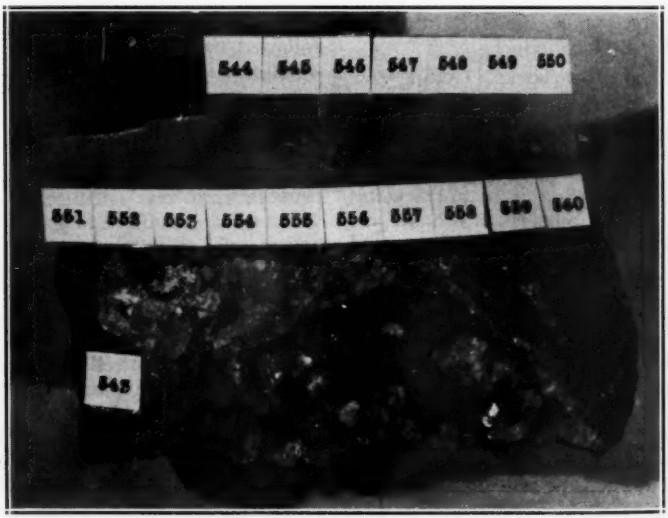


Fig. 3

A section of the backing with separated numbers together with a mineral specimen to which one of the numbers has been applied. The numbers are easily removed by tearing the backing between the cuts and stripping the number from the backing.

superimposed tapes and the backing can now be cut across between the numbers, but the cut should end soon after passing across the tape in order that the center section of the backing can hold the numbers in place until they are needed, Fig. 2. The separated numbers still attached to the backing, can easily be carried in cellophane or other envelopes and placed in the notebook pocket where they are always available at the same time a description of the specimen is recorded.

When a specimen is to be numbered, the desired number can be removed by tearing the film or linen between the cuts and then stripping the numbered adhesive tape from the backing and applying it on the desired spot of the specimen and pressing the number firmly to give it a strong contact to prevent its easy removal in handling or washing, Fig. 3.

Adhesive tape adheres well to all dry specimens that are not powdery or friable in which case the material breaks apart and frees the tape from the specimen. In this event the tape can easily be attached to some foreign material and wrapped with the specimen. The cellulose tape provides a high degree of transparence for the number and an excellent protection from ordinary handling and an occasional wash with water which otherwise would result in badly smudged numbers.

The same system can be used to advantage in numbering the mineral specimens as they are put into the cabinet or collection. In this case, however, it is desirable to use smaller pieces of tape for the number. In the field the small pieces are difficult to apply especially if one's fingers are cold. To make the smaller pieces of numbered tape one can still use the ½ inch adhesive and cellulose tapes as described above. Instead of typing the numbers in the middle of the tape, one can type a row along each edge and single space the numbers, Fig. 4. In this instance the numbered tape is first cut through the middle and then the numbers on the tape are separated as before leaving the film or linen backing intact to keep the numbers in order. Even smaller numbered pieces of tape can be made by using elite type and typing closer to the edge of the tape and then cutting out as much of the central part of the tape as one wishes. The increasing difficulty of handling small pieces of adhesive tape places a lower limit on the size of the numbered piece below which it is not desirable to go.

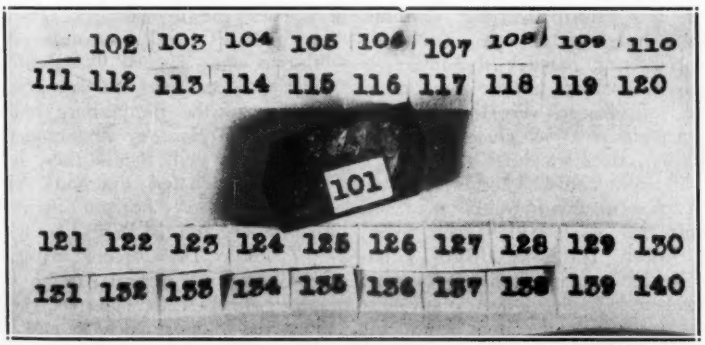


Fig. 4

One-half inch tape with a double row of numbers and cut first through the middle of the tape and then between the individual numbers can be used for small or cabinet specimens in order to reduce the size of the number label. The label may be trimmed to a still smaller size when desirable.

NOTES ON THE OCCURRENCE OF CELESTITE IN PENNA.

By HOWARD V. HAMILTON
187-A Franklin Ave., Vandergrift, Penn.

An appeal by the editor of ROCKS AND MINERALS (see R & M October, 1945, p. 479), and the writer's interest in Pennsylvania minerals, particularly those found in limestones, started the writer on a study of the occurrence of Celestite in Blair County, Pennsylvania. Information from mineralogic literature and notes taken on field trips to Blair County furnished many interesting facts on the subject. Several of these items, thought to be of interest to other collectors, are included in the following notes.

Celestite, native strontium sulphate ($SrSO_4$), was described as a new mineral species by Werner in 1798, following his study of some fibrous material taken to Germany from near Frankstown, Pennsylvania. "The mineral was collected by a German traveller, Schütz, in 1791. An analysis of this material was made by Klaproth, who found in it the then newly discovered element strontium. Werner named the mineral "Coelestin" because of the faintly blue color of the mineral." (1).

The earliest reference to Celestite, available to the writer, was found in the "Handbuch der Mineralogie." The mineral Cólestin-sulphate of strontia, was described as "principally pale sky-blue, compact, dull lustrous exterior, slightly brilliant interior, parallel fiber-like fracture, pieces separated in thin layers, transluscent, soft, brittle, very light dispersing." An analysis was given "strontian earth 58%, sulphuric acid 42% and a trace of iron oxide." Localities listed "Frankstown in Pennsylvania" with indications that it had also been found "near Bristol" (probably Bristol, Gloucester, England), "Frankreich" (possibly Saxony?) and "Sicily." (2).

Dana, in his second edition, states that "a blue fibrous Celestite occurs at Franktown, Logan's Valley, Huntingdon County, Pennsylvania." (3) Not long after this edition was printed, Blair County was established (February 26, 1846), from parts of Bedford and Huntingdon Counties (4), thus placing the area containing this famous occurrence in Blair County.

Young wrote in 1875, "that fibrous Celestine, the greatest part of it having a very faint blue tint, occurred in beds of irregular thickness, in a hard gray limestone slate, near Bells' Mills, Blair County, Pennsylvania. It was found along the west branch of the Little Juniata river, at the foot of the western slope of Brush Mountain, one mile south of the railroad station." (5) (The town formerly called Bells' Mills is now Bellwood).

A thorough study and report of the occurrence and association of Celestite, at the type locality, was made in 1946 by a graduate student at Pennsylvania State College. This work was submitted for cerdit, on an advanced degree, in the form of a thesis. Through the courtesy of this student, a detailed description of this historic locality is made available for interested collectors.

"The type locality of Celestite occurs one-half mile southeast of Bellwood, Blair County, Pennsylvania, in the Altoona quadrangle. It lies on the G. Benedetto farm, U. S. route 220, R.F.D. No. 3, Altoona, Pa.

"The Celestite occurrence is located in the Wills Creek formation of Upper Silurian age. The Wills Creek at this particular locality is 650 feet thick from the top of the Bloomsburg redbeds to the solid Tonoloway limestone. At the base of the Wills Creek there is a thin bedded, laminated limestone which is used as a key horizon between the Bloomsburg and the Wills Creek.

"Celestite first occurs in crystalline form about 41 feet above the Bloomsburg redbeds. They are found in and along the joints, mudcracks and bedding planes, which indicates they were formed after the shale was deposited. They are exposed close along the stream's edge. Above this horizon the crystals become more abundant but are considerably smaller. The first vein of fibrous Celestite

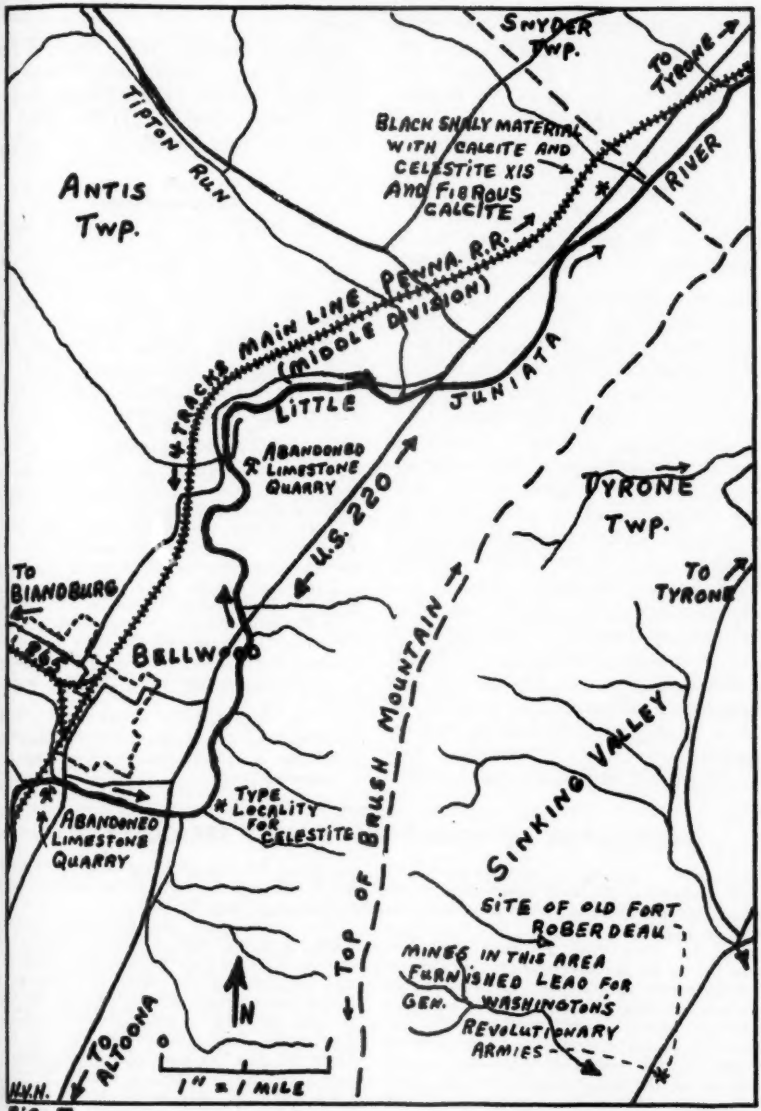


FIG. I.

AREA AROUND BELLWOOD, BLAIR COUNTY, PENN.

Note that the streams in Sinking Valley end in an arrow. This particular area is honeycombed with underground caverns and passages, hence the name Sinking Valley taken from Sinking Run which disappears, then comes to the surface again several miles to the northeast toward Arch Spring.

occurs 47 feet above the Bloomsburg. It is ¼ inch thick and is succeeded by 5 feet of arenaceous and calcareous material which contains diseminated veins and crystals. 52 feet above the Bloomsburg, 5 veins of fibrous Celestite averaging ⅛ to ¼ inches occur in the space of 1 foot. Higher in the section, about 70 feet from the base of the formation, 5 more veins of the fibrous mineral occur, ranging in thickness from ¼ to ⅝ inches." (6).

Figure 1 shows a sketch of the area around Bellwood taken from a topographic map of the Altoona quadrangle.

The writer visited the locality recently, and in addition to fibrous material, collected several specimens of small, colorless, transluscent prismatic crystals of Celestite, associated with small colorless Calcite crystals in pockets in the limestone. Several pockets were noted in which micro Celestite crystals formed a coating on the larger Celestite crystals giving them a fuzzy appearance.

Another locality for Celestite was found in a road cut along U. S. 220 about 3½ miles northeast of Bellwood (7/10 mile southwest of the steel bridge over the Pennsylvania railroad), The Celestite occurs as small, pale blue tabular crystals, occasionally as rosettes, associated with crystallized and fibrous Calcite, in joints and bedding planes in black shaly material.

Celestite has also been reported from Williamsburg, central Blair County, as prismatic crystals, faintly bluish, measuring 2 cm. in length. (1) However, the writer has been unable to find this occurrence.

Acknowledgment

The writer wishes to extend sincere thanks to Mr. Marvin D. Mangus, now with the United States Geological Survey, for his kind permission to use excerpts from his thesis; and to Dr. Edward Steidle, Dean, School of Mineral Industries, Pennsylvania State College, for his kind permission to reprint part of Mr. Mangus's study.

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PROPRIETOR OF DESERT RAT'S NEST SERIOUSLY ILL

George W. Chambers, also known as 'Dry Wash' Chambers, and who has advertised extensively as the Desert Rat's Nest, has been seriously ill for some time. He was in a hospital for some time and then in a Rest Home where he did not improve. He has recently returned to his place of business in Encinitas, San Diego County, California, feeling fairly well. But additional misfortune has befallen him as his eyesight has failed because of glaucoma. A couple of years ago he lost the sight of the left eye and now the right eye has gone bad. But he has partially regained the use of the left eye, but not well enough to be able to handle his extensive stock of gem materials.

In his younger days Mr. Chambers had travelled extensively in Africa, South America, Mexico and in Europe, collecting as well as studying minerals as well as ore deposits. He had also pretty well covered Alaska as well as Western United States. He had discovered numerous deposits of interesting minerals long before Mineral Collecting had become as important as it now is.

For many years Mr. Chambers had conducted portable sales places in various parts of the West, of late years only in California and for the last few years in Encinitas. He had dealer contacts pretty well over the world and he has handled many valuable pieces of gem stones. Like most dealers his best pieces went the first so that many who called on him later did not have a chance to see the good pieces so they were apt to think that he carried nothing but 'junk', which was not always so.

Mr. Chambers is hoping that promised treatments will so improve his eyesight that he can resume business. But of course that will depend on several factors and his age might be against him.

Charles S. Knowlton
143 N. Acacia, Fullerton, Calif.

EMERALDS STOLEN FROM NEW YORK CITY MUSEUM

Editor R & M:

It might be a good idea for your magazine to print a brief note of warning to collectors to be on the lookout for some specimens that were stolen from the collection of The American Museum of Natural History.

We regret to say that one of the cases, that in which the beryl crystals were displayed, was opened and some of the choicest examples removed. Fortunately, all of them have been photographed and are easily recognizable. They have little or no gem value, but are irreplaceable as specimens. Most important of the missing specimens are four North Carolina emerald crystals, all illustrated by G. F. Kunz in his Bulletin 12, HISTORY OF THE GEMS FOUND IN NORTH CAROLINA. The 8¼ inch long, 1½ inch wide emerald crystal, which is also pictured in his GEMS AND PRECIOUS STONES OF NORTH AMERICA, in Plate 5, is the best known. The other three are smaller, a rutile crystal grows on the side of one, 1¾ x 1⅛, a second is slightly paler and clearer and is 2 x ½ inches, and the third is 1¾ x ¾ inches. All are typical of North Carolina with slightly etched surfaces and most of the color in a band near the surface. They are illustrated in Plate 9 of Bulletin 12, being numbers 4, 2 and 3 respectively.

In addition, five outstanding Colombia emeralds were taken, one a single loose broken crystal 1¼ x 1 inch in size. Four matrix specimens are gone, the best, a single crystal, about one inch by a half inch, in the surface of a druse of white quartz and gray calcite, the specimen measuring 4 x 2½ inches. A smaller and paler, but very clear crystal, perched on black limestone 3½ x 2½ inches in size was also taken. A third is a large crystal on limestone 2 x 1½ inches. The last was two paler crystals on limestone, 4 x 3¼ inches in size.

One Russian emerald was lost: A fine colored crystal 2¼ x 1½ inches, doubly terminated with some mica still clinging to the surfaces. Also, a long thin greenish Russian beryl crystal is fairly clear, 3 x 1⅛ inches, and lastly another greenish Russian crystal with some matrix of quartz, 2 x 1¾ inches.

It is hoped that some collector, or dealer, will be offered some of these specimens and will be able to recognize them. It is a great loss to the mineralogical fraternity because of the historic interest of the North Carolina stones, and a pity if they do not turn up again to thrill the numerous visitors to the collection who have seen them in the past. Steps have been taken to make further loss of this nature impossible.

F. H. POUGH
Curator, Geology & Mineralogy
American Museum of Natural History
July 18, 1950 New York, N. Y.

ROSCO C. WRIGHT DIES SUDDENLY

Colorful Mining Figure and Mineral Dealer Stricken by Heart Attack.

Goldfield this week mourned the passing of one of its most colorful and respected citizens, Rosco Clifford Wright, who died suddenly at about noon Tuesday (March 28, 1950) after complaining of feeling ill a short time before. His body was discovered by Sheriff E. N. Kitchen, who was summoned by Mrs. Edna Hisle Chrt when Mr. Wright failed to answer the door in response to her repeated knocking.

His body was lying in bed at his residence on Main St. Death was due to natural causes, presumably a heart attack, according to Dr. Russell A. Joy.

Born in Knox County, Missouri, on August 3, 1888, Mr. Wright came West about 35 years ago and had been a prospector and mine operator almost ever since, except for a brief time during World War I when he worked in the Mare Island shipyards and another period when he was in the ranching business.

For the past 20 years or so he was one of the Far West's best known prospectors, and became renowned as "Death Valley Curly" for his exploits in that famous desert wasteland.

In 1931 he came to Nevada, settling in Beatty where he resided for 10 years. He then moved to Goldfield where he had made his home ever since.

Survivors include his widow, Marie; a sister, Mrs. Bertha Burrows of Fort Bragg, Calif.; and three daughters, Mrs. Ruth Colvin of San Diego, Calif.; Mrs. Bernice Bessesen of Eureka, Calif.; and Eleanor Wright of Pacific Grove, Calif.

—Goldfield (Nevada)
NEWS & BEATTY BULLETIN
Friday, March 31, 1950

RAMBLINGS OF A ROCKHOUND

By R. F. HENLEY
4075 19th Street, San Francisco 14, Calif.

They say the murderer always returns to the scene of his crime but it was not morbid curiosity that prompted Clarence and me to start the trip I am here describing. Clarence wanted some more of that fluorescent aragonite from the Slate Range north of Trona, Calif., and I wanted more of that travertine from Death Valley, Calif., that looks like ivory soap and makes fine ashtrays and book-ends. I was once showing a paper weight made from it to some friends and one of the Boys put it to his nose to see if it was soap. I first collected some of it in 1941 and have only now discovered that it is slightly fluorescent and phosphorescent.

On March 6th, 1950, Clarence Crane and I started from his home in Berkeley, Calif., at 6:30 A. M. and headed straight for Trona on Searles Lake. We camped one night on the desert about six miles north of Mojave and next morning went on to Trona and after visiting a few old friends went straight to Death Valley where we camped at the public camp grounds and next day on to the travertine deposit. There is just one vein of this right beside the road (see page 36, R & M for January-February, 1950) and although it has been much worked we found to our surprise all we wanted and of good quality—by means of hard digging which Clarence and a friend had to do as I am past that stage.

That night (Wednesday) we spent at Emigrant Spring, famous in the history of the "Jayhawker" emigrants enroute to California in the gold rush days, one hundred years ago. If they could only see the ease with which we now traverse that canyon on a good paved road! We then went back to Trona where we camped for a week making daily trips to the nearby mineral locations. We made three trips to Oscar Wahlstrom's aragonite claim, with his consent, and secured an ample supply for book-ends, ash trays, paper weights and for fluorescent display. About eleven miles north of Trona is a quarry operated by the West End Consolidated Chemical Company from which they take out about 200 tons of rock a day for use in refining the salts from Searles Lake.

The material is calcite and has a cleavage but laid down very irregularly so it has a crystalline appearance. While most of it has the usual color of limestone, some is a light tan which contains iron and is rejected at the quarry because the iron melts in the retorts and causes trouble. Some of it fluoresces and the tan colored rock has a fine fluorescent coating so we went out at night with a long wave lamp to collect some but later found that it fluoresces better under a short wave lamp.

Under the guidance of M. Leonardi, of Trona, Treasurer of the California Federation, we made another trip into Death Valley to a newly discovered vein of colemanite (a calcium borate) and secured a good supply of crystal groups, and since returning I have been busy sending out 15 specimens to my friends and writing letters to accompany them. I like to share with my friends.

We also visited for the first time a famous onyx deposit in the Panamint Valley, Calif., and I secured some of the red material that others had thrown away. It is also green and red banded but few of the rock polishers seem to appreciate the fact that the red "matrix" also works up and polishes beautifully. About 50 miles from Trona is Last Chance Canyon where Dutch Cleanser (seismotite) comes from. There are numerous minerals to be secured there including fire opal and also common opal with uranium. I "collected" some of the latter from the back yard of Mr. V. L. Fraser, President of the Monterey Bay Mineral Society, when I attended its annual show at Salinas in February and it fluoresces a brilliant green, almost an exact match for the willemite from Franklin, New Jersey. I have to keep them on separate shelves in my cabinet to avoid confusing them.

The California Federation held its annual show at Trona last June which was an open air affair at the recreation ground about five miles north of town. There are a number of wells here and the place is known as "Valley Wells." Mr. Pilott, who operated the pumps and also looks after the camp ground, came down to where we were camping and I passed out a few specimens from a case which I usually carry and shortly after he returned with several quarts of hanksite crystals from Searles Lake. Being composed of chemical salts, these crystals dissolve easily in water so to preserve them I cleaned them with a damp cloth and then rubbed them with an oiled cloth to prevent absorption of moisture. They have a yellowish or lemon color and while not handsome they do make good cabinet specimens.

When I started out Sunday morning, April 16th, to join the monthly field trip of the East Bay Mineral Society, I did not expect to experience anything worth telling about, but you cannot always foretell. About a dozen cars met at the little town of Monticello in Napa County, Calif., and proceeded north and west a few miles to Pope Creek to prowl the gravel banks and the stream itself for jasper. A few very fine specimens were found but my luck was nil so I forsook the gang and being that far from home anyway I went up Pope Valley, over the range and into the next valley to the west to visit the famous Mirabel Mine to prowl the dumps at night with a long wave lamp for some of the fine fluorescent dolomite that is found there. I had no one along to do the sledging and pack the heavy stones so had to be content with the smaller pieces of which I secured a good supply and the smaller ones seemed to be the best anyway. They are beautiful. This mine has been written up a number of times in R & M both by myself and others so no need to go into lengthy details other than to say that it is completely abandoned and the buildings stripped of sides and roofs to make other use of the corrugated iron. State Highway 29 runs through the property and this miniature ghost town is on the east side but on the west side there is a grove of fine large shade trees and there is now a motel and an artificial trout pond where for a price you can catch unsophisticated trout out of a puddle. I spent the night at the motel

Digging colemanite in Death Valley, Calif. M. Leonardi (left) and Clarence Crane (right).

and next morning prowled several piles of rocks on that side of the road which were the output of some prospect holes and here found my best specimens without the aid of a lamp. It is a lovely valley at the foot of the north slope of Mount Saint Helena and on the route to Clear Lake which is surrounded by summer resorts and summer homes.

Starting for home I went via Petaluma to pay my respects to Mr. M. Vonsen who has what is probably the finest and largest private mineral collection in California. He has made a number of discoveries including a new mineral, an iron and magnesium borate, at the city quarry in Riverside, Calif., and which has been named vonsenite in his honor. He was also the discoverer of the fine vein of colemanite in Death Valley as mentioned above, and of all things! He has lately discovered nephrite jade in situ on his OWN land in the adjoining (Napa) County. Can any rockhound duplicate that feat? I am the proud owner of a small piece which is banded much like serpentine and polishes well. I recently made three unusual cabochons from an agate that a friend dug up while gardening in his Berkeley back yard. And some years ago a hill in Portland, Oregon, was being sluiced away to fill a shallow lake for town lots and soon there was a group of rock hounds at the site grabbing for agates as they came down the sluiceway. The lots are now all built upon and no telling what the owners find when they go a gardening. So get busy, rockhounds and start digging in the cellar or back yard!

A ROCKHOUND'S BIRD NEST

By F. E. RANKIN

Rt. 2, Box 2105, Paradise, California

Here is a story about what I call my "Rockhound's Bird Nest." I have shown the "nest" to many rockhound friends and exhibited it in several mineral shows, but have never seen another even remotely resembling it.

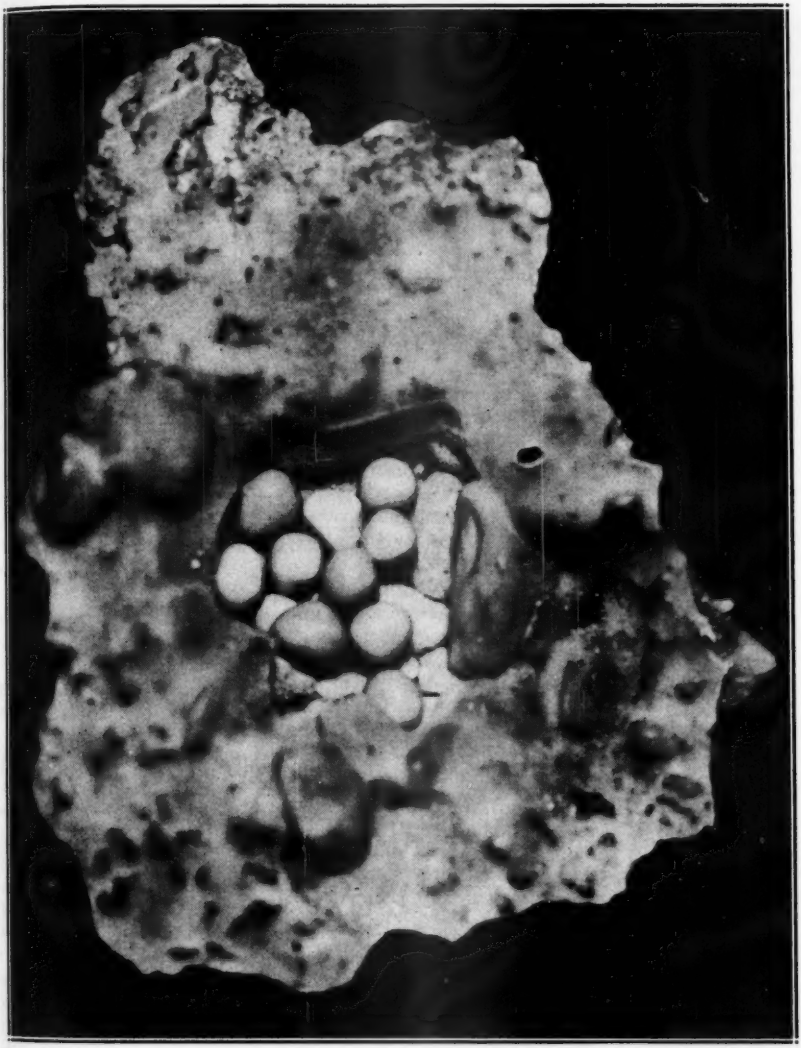
It was found on the 1200 foot level of the old Gold Bank Mine at Forbestown, California, about 30 miles from our present residence.

The nest was formed by water carrying lime dripping from the roof of a crevice on the small pebbles or "eggs" that can be seen in the center of the "nest." The lime carried by the water splashing off the eggs formed a concretion of other nearby pebbles into a solid mass. The dripping action on the eggs gave them enough motion so that they did not become congealed into a solid mass with the rest of the nest, thus providing a bowl for the eggs.

There are 12 eggs that vary from 1/4" to 3/8" in diameter in the bowl, which is approximately 1½" in diameter, ¾" deep. The overall measurements are 4½" long, 3¾" wide, and 1¾" thick. The nest is gray in color and fluoresces faintly in spots under ultra-violet ray bulb light; does not fluoresce at all under short-wave light. Eggs are nearly white in color.

George L. English has described one instance in his book, GETTING ACQUAINTED WITH MINERALS (fig. 126, p. 93), of a calcite bird's nest being found in Germany. I wonder if I have a "first" for the United States?

Editor's Note: The concretions found by Mr. Rankin are oolites. In 1925, Dr. Willis T. Lee, of the U. S. Geological Survey, collected a considerable number of such oolites from the Carlsbad Caverns, at Carlsbad, New Mexico. They included little rounded balls of considerable range in size, to which he gave the somewhat fanciful name of "cave pearls." These were later described in the Proceedings of the U. S. National Museum, Washington, D. C., in Vol. 76, Art. 16, (pp. 1-5, pls. 1-8) by Frank L. Hess—"Oolites or Cave Pearls in the Carlsbad Caverns."



(*Forrest's Studio, Oroville, Calif.*)

"Bird's Nest Calcite" from the Gold Bank Mine, Forbestown, Calif.

Editor's Note: Just as we were going to press, several loose pebbles, coated with calcite, were received together with an article on their occurrence. The sender and writer was Kiril Spiroff, of Michigan Tech., Houghton, Mich. The pebbles were found recently in the Seneca Copper Mine in Keweenaw Co., Mich., and they resemble in appearance those in the above illustration. This is another locality for "Cave Pearls." Look for the article, titled "Seneca Calcite," in the next issue of ROCKS AND MINERALS.

MINERAL-LOGICALS—FROM A TO Z

By CHAS. A. THOMAS
706 Church St., Royersford, Pa.

We all know, reasonably well, what makes a Geiger counter tick. This very useful instrument has a continous reaction called the "background effect" and anything more reactive than this rather steady tick should denote proximity to something that may be radioactive. Mineral collectors react the same way to some of the things they find in the field or in the study although nearly every rockhound will react differently to some phases of mineralogy and specimens therein. Some of us hit the high point of the gauge for such things as quartz, selenite, coppers, zinc specimens, lead, gold; whether macro, micro, fluorescent, crystalled, rare, beautiful, and so on.

Perhaps some of us who are more or less interested in his fellow collectors as well as in what he collects, will enjoy the following pertinent things and account of the things that have affected this writer (herein after called "I", "me," "us" or "we") to a degree or degrees of intensity of interest which someday will be actually measurable with a Geiger Counter. Most of us know well the feeling experienced when we enter a famous collecting area and start searching for the pot 'o gold. Here are some of the things that made me glad I made the trip or made me thankful that I made the exchange or otherwise was able to see, study or fall heir to a mineral specimen of more than common interest.

Anthophyllite: In the early days of my collecting, I was busily engaged in finding nothing that looked remotely different from common rock at the old Warwick Iron Mine area above Elverson on Route 23, in Pennsylvania. Perhaps several tons of hard rock were moved, busted open or chucked aside when I noticed what later proved to be a concretion. It was not large, slightly longer than egg shape, and with some luck, the nodule split cleanly in half and lengthwise. The matrix was an ancient epidote and in it were sprays and plumes of a glistening pale buff to white mineral. The material was identified some months later as anthophyllite. Oh, yes, the region is full of it, the experts said. But none has been found since then at any other spot.

Barite: Sure enough, large crystals from our Western localities and other famous barite collecting areas but some of the macro and micro barites associated with other interesting minerals from the old Perkiomen Mine near Audubon, Pa., are varied in habit. Microscopists may see extremely elongated stellate forms of clean, colorless barite groups or single crystals, coated with very thin shells of drusy quartz, wholly or in part or entirely free of this coating and presenting lustrous air-clear blades. Unbelievably thin and clear rectangular, pentangular and triangular tabular crystals associated with malachite, wulfenite and others may be seen under a good lens at the proper angle to a good light. Perhaps the most unique type from the Perkiomen and Ecton Mines area present, in macro and micro forms, an elongated very thin wide crystal with rather white feathered terminations. Some of these interesting barites may or may not contain some strontium.

Clinoclasite: A most thrilling specimen; druses of dark greenish blue crystals on rock from the famous Majuba Hill Mine, Pershing County, Nevada. This arsenic-pentoxide, cupric oxide and water specimen was sent me by John L. Parnau of Stockton, California. The splendid micro possibilities of this mineral was pointed out by Mr. Parnau and I must say I have never seen a blue as beautiful as clinoclasite blue. To those who have not seen this mineral under a microscope lighted with a 100 watt spot, the color may be inadequately described thus: A few brush strokes of deep Prussian Blue lacquer-varnish on a glass slide burnished with the thinnest of gold leaf and held up to the sun or a strong light; the same effect a gold leaf sign painter sees before he covers the finished letters with black varnish.

Dahlite: A phosphorite (apatite) in perfectly spherical balls an inch to an inch and a half in diameter which, when cut in two, presented greenish to straw colored, fine radiating, compact needles, not unlike the button-ball, but without a central "seed." These were picked up on the surface of the beginning of a large prairie about one and one half hours auto ride eastward bound from Custer, Montana. Blood-red carnelian and fossil casts were also plentiful at this spot on the Yellowstone Trail. The Academy of Natural Sciences of Philadelphia identified the dahlite in 1935 some ten years or so after they were found.

Epidesmine: A stilbite, but to me, sufficiently different from the usual stilbite to deserve the special and rather pretty name. Long and short, colorless almost straight sided crystals are found in cavities in the diabase-trap rock at the Dyer's Monocacy Quarry, near Monocacy, Pa. They stand alone or are associated intimately with white and colorless stilbite of the conventional form. Filbert sized spheres of radiating aggregates of epidesmine crystals with smooth glistening surfaces, smooth as a marble, are found in various light honey shades at Kibblehouse Quarry, Perkiomenville, Pa. Individual crystals with white tabular calcite interspersed make lovely thumbnail and cabinet sized specimens of this controversial mineral. Micro epidesmines are far more beautiful than most stilbites, though air-clear stilbites associated with epidote and tiny cubes of iridescent pyrite make lovely micro mounts from the Kibblehouse locality and others. Tabular calcites found with epidesmine are somewhat fluorescent under the new Mineralights.

Fluorite: Exquisite gemmy, colorless to honey colored crystal groups on Silurian limestone and celestite from Clay Center, Ohio, collected by our good friend Cal Gettings of Toledo, Ohio. These superb crystals in perfect cubes from micro to over one-quarter inch across are super brilliants with some phantoms. Under the short wave Mineralight they exhibit a greenish to cream colored fluorescence with a rather bright phosphorescence. A hydrocarbon is probably responsible for the tawney buff colored reaction in the matrix and in the clear crystals of fluorite though strontium sulphate also may add its influence to either or both matrix and crystals. Reddish purple and a more bluish to colorless fluorite crystals in cubes and twinned or halved octahedrons were found in a quarry on Conshohocken Road near Norristown, Pa. Elongated cubes were found up to three-eighths inch, honey color on one end and a beautiful purple on the other end. Tests were made for fluorescence which were almost negative but for a small pale blue fluorescent crystal and a small mass in the quartz matrix.

Greenockite: When the Chas. A. Belz family and myself visited the old Friedensville, Pa., zinc mine area, we decided to concentrate on the Correll mine dumps, near the large glory hole which was then being pumped dry in an attempt to reopen the mines. This was given up and a new area in the vicinity is well on the way to being actually mined again perhaps between 1950 and 1952. Collecting micros has many ifs and buts at this place but soon a shout from Mrs. Belz attracted our attention. She had cracked open a limonite, sphalerite, marcasite mixture and in a small cavity, lined with glistening hemimorphite crystals was a sprinkling of fine greenish yellow earthy grains of greenockite. The background of goethite and limonite made a perfect setting for the calamine crystals and the pretty green masses of greenockite. This cadmium sulphide mineral has been found frequently since then but not in such an interesting specimen as that found by Gene Belz. Smears of the mineral and greenish dusty deposits are easily found on halloysite (a light buff to white porcelain like zinc clay) and in minute veins in sphaleritic limestone.

Hematite Few collectors who have visited the famous Wheatley Mines area near William's Corners (the books say, "near Phoenixville, Pa.") have been lucky enough to find hematite. A few small concretionary nodules of reddish purple micaceous hematite were picked up near

the Wheatley Mine. About a half mile east or a little more north east of the Wheatley Mine, is an unused field with a dry spring ditch coursing toward the Pickering Hunt Club property. In this ditch, one may find more nodules of dark brown to reddish hematite masses which on breaking open have revealed darkly iridescent, perfect clusters of beautiful micaceous micro hematite. One perfect group presented dark, almost black-red crystals on edge, each rimmed with a delicate border of some unidentified white mineral.

Ichthyophthalmite: This thriller, goodness me, is known to most of us as apophyllite. Micros of doubly terminated crystals with a brilliant adamantine luster were first brought to our attention as they were seen perched on pectolite needles from a Paterson, N. J., locality. Detective work was carried on in my own zeolite locality, namely, the diabase-trap rock area, southwest of Reading, Pa. The search successfully ended in the trap-rock quarries operated by the Dyer Company near Monocacy, Pa. We stated in these pages not too long ago that various forms were encountered, all rather fine specimen material for cabinet and micro mounts; that they were found to be both fluorescent and nonfluorescent under the Mineralight and high intensity long wave lamps and that the tabular, pyramid, cube and somewhat complex shapes were very lovely. I want to mention here that another type, extremely difficult to detect under a microscope, is that found associated with the elongated, clear gem-like quartz crystals in prehnite cavities. These apophyllites are translucent and at first glance, look like one of the elongated quartz crystals cleaved lengthwise in two but with the tell-tale stria lines running the full length of the crystals. A fine needle pressed gently against one of these crystals will shatter it easily but not so with the quartz.

Jokeite: Pardon, please, this whimsical paragraph. Some years ago we experimented with metallic phosphors and fluorescent substances for art work to be used with or without benefit of U. V. light sources. A special plastic carrier was evolved and with a certain caution, a very brilliantly fluorescent "paint" was used on various backgrounds such as doctored plaster, papier-mache and other materials. The pot and palette discards were carefully saved by scraping them into forms of crumpled cellophane and left to dry. What gorgeous fluorescent "mineral" specimens! One remaining "specimen" in my cabinet fluoresces and phosphoresces in bright cerise, brilliant yellow, orange, white, green and blue with a spot of phosphorescent purple.

Kyanite: In the region around Eagle, Chester County, Pa., collectors have picked up the so-called blue quartz of the area. There is no doubt that this blue (very blue when seen in wet weather) quartz is that color because of the Kyanite. Kyanite-like hairs can be seen in some clearer spots in this quartz under a good lens. Perhaps the bluest of this quartz may be seen in the driveway of the Eagle Field Farm just outside of the town of Eagle and close to the large graphite mine on this property. Triboluminescent quartz in huge boulders are strewn about the edge of the hole.

Linarite: Some years ago, in looking over some micro material from the Perkiomen and Ecton Mines, near Audubon, Pa., I noticed some of the very light blue indistinct crystal masses and veins associated with sphalerite, galena, cerussite and malachite. I thought, at the time, that the pretty colored blue grains and streaks were the near anglesite mineral noted in lists for this locality. In one cavity on the opposite side of the specimen were much more distinct needle-like crystals of a very lovely deeper blue. Later trips to this locality produced very excellent groups of this lovely blue crystal and patches of the darker and lighter blue in one or two small samples of ore from the Ecton Mine area. Comparison with known linarite from Nevada showed it to be the same mineral. The transitionary light blue patches, though not positively identified, are classified, tentatively as anglesite.

Manganonatrolite: The Kibblehouse trap rock quarry which is located at

Perkiomenville, Pa., as I have noted in these pages several times, is an excellent locality for the occurrence of natrolite, which may be found in several different colors and habit of crystallization. Specimens have been found which were almost a true pink, in hard compact fibrous to loosely separated "heads" of fine glistening needles, with small eyes of white to very dark brown against the pink background. Some of this material is used for making very highly polished cabochons There is no doubt that the mangano variety is both pinkish and white, for some of the pink, but not all, will fade to white on exposure to sunlight. Two small samples of the compact white natrolite were found to be fluorescent only under the short wave Mineralight and with no phorphorescence, possibly due to just the right amount of manganese content. Other specimens of natrolite fluoresce because of an admixture of aragonite which will phosphoresce to some extent.

Needles, micro pyrite: Extremely elongated (needles) pyrite were found on honey and orange colored stilbite. The microscope revealed lengthened cubes which, after growing straight for a few micromillimeters, turned sharply at some angle, then straight for another few micromillimeters, and so on. One very interesting golden needle, had the general form of an angular "&". Under high power (60X or better) some regularly spaced etch marks continued on one face, the length of the crystal. One of the elongated cubes seemed to take directions as if forming a perfect cube in outline, then forgetting to complete the proper number of sides. A frantic search for a substantial number of specimens of this interesting pyrite went unrewarded. These were also found at Kibblehouse quarry.

Opal: Some gem lovers, whether mineral-minded or just collectors of pretty baubles, select, as their favorite, the fire opal. But there is a transparent common opal from a secret locality in Texas which, under the short wave and long wave of the Mineralights and other lamps of high power, exhibit a very intense lemon-yellow to greenish-yellow fluorescence. One such specimen lights up as much area in my darkroom as any willemite from Franklin, N. J. It comes in white sub-translucent to almost colorless transparent plumed cutting material. Some of the whiter specimens have a lemon tinge in bright sunlight, suggesting fluorescence. This material reacts under all lamps.

Polyadelphite: A greenish garnet mineral from the Franklin-Ogdensburg zinc mines in Sussex County, N. J. Another variety is quite common from the same locality. It is a light tan to brownish, somewhat fibrous mineral frequently webbed with fine stringers of willemite. Small masses of rhodonite are apt to be included as well as some showing of clinohedrite. The greener polyadelphite is not in itself fluorescent although the same amount of manganese content found in the fluorescent willemite and troostite is sometimes found in polyadelphite giving rise to some controversy as to whether polyadelphite has its own bright green fluorescence or that borrowed from an admixture of willemite. Whichever, the gemmy green polyadelphite sent to me by Thomas Mooney of Morristown, N. J., is a lovely fluorescent specimen, as beautiful in daylight as any gemmy garnet of any color. Small garnet crystals of grayish olive-green polyadelphites are rarely fluorescent but the associated calcite and willemite make attractive specimens under the short wave Mineralight.

Quartz: A few years ago, on a collecting trip to Dyer's Monocacy quarry, with Gene and Charles Belz of Lansdale, Pa., we noticed a bright beam of light which seemed to originate from a large boulder of diabase-trap rock farther back in the quarry. Closer inspection proved the crystal to be a very clear quartz, imposed on a pale layer of thinly laminated prehnite of a type which may or may not be called massive prehnite. Directly under the gleaming quartz crystal was a small layer of flattened apophyllite, somewhat pearly and sub-transparent. This combination no doubt caused the brilliant beam of light to emanate from the quartz crystal for such a distance. This small

group of crystals was not collectable without greatly damaging some of the group and remained there for frequent examinations until the quarry was deepened. Other quartz crystals, mostly micro and small macro size, were found in cavities with laumontite, prehnite, titanite, pyrite and apophyllite, in perfectly clear elongated forms with perfect "S" faces in every instance.

Rhodonite: The "albino" form of this mineral is quite interesting. Snow white rhodonite may be found elsewhere, but possibly the whitest is found at the zinc mines of Ogdensburg and Franklin, N. J., also the pinkest. It is an oddity worth mentioning from a locality where anything may be expected. Its manganese content is probably too great to allow fluorescence of its own but some varieties contain the almost inevitable willemite which, when also white will present a beautiful fluorescent and phosphorescent specimen. Without a Mineralight, some of these odd combinations are missed.

Slag: Regular readers will pardon this mention again. To new owners of Mineralights and other high intensity short wave and long wave units, may I suggest the great possibilities one may encounter in the investigation of the numerous slag piles throughout the country? To mention one type: the manganous sulphate slag of the old smelter of Bechtlesville, Pa. This bright apricot to yellow fluorescent slag under the Mineralight is a welcome addition to the fluorescent display. Some long wave lamps (transformer type) bring out some lovely blues in this type slag. There are dozens of others to be mentioned in the future.

Tremolite: There are so many. A particularly lovely colored tremolite for the fluorescent addict is the white to gray-white, brittle, fibrous type from Talcville, New York. It is very triboluminescent and shows a bright orange to pink, often in the same chunk, under the transformer long wave lamps. Certain lamps of this type, rigged properly with the proper filter and light source, with the filter not more than one-eighth inch from the lamp and with all stray white light beams hidden in a reflector, will give the best reaction with this mineral. The delicate blended hues of this specimen are very satisfactory. Some solid pink specimens have a reaction in quite a different hue of pink than found in Franklin or other specimens. A crystalled, grayish in daylight variety comes from near Sparta, New Jersey, which reacts a pale true green under the Mineralight. Cavities in iron ore containing acicular crystals of tremolite (mountain leather) will often exhibit a pale blue-white to yellowish or orange fluorescence under various lamps. Some masses of mountain leather, when pulled apart to secure a fresh, unweathered section, will react with a brilliant phosphorescence under the open Mineralight (without filter).

Uranatil: Whether this is a variety of uranophane or the same, makes little difference. It is a lovely yellow colored needle type crystal in radiating groups, that we are concerned with here. It was found by a few collectors at the Williams quarry near Easton, Pa., a source of several radioactive minerals; autunite, thorianite, and others. Mr. John Bertrand, whose account of this occurrence appeared recently in the pages of *Rocks and Minerals*, sent me a very lovely micro group of this rare habit. The tiny needle-like brilliant yellow crystals are in a small fissure in columnar tremolite. It is rare indeed; Mr. Bertrand, having found but a very few tiny specimens in his many trips to this famous quarry.

Vivianite: Another micro. Radiating groups of blue-green lustrous needles associated with snow-white needles in tufts in the hollow shells of belemnites from Mullica Hill, N. J. Mrs. Gene Belz of Lansdale, Pa., is one of a few collectors who has discovered the potential possibilities of the belemnites for good micros. This fossil boney structure of the squid is all that remains of the animal and it is often solid calcium carbonate of a brownish waxy type. The iron sulphate, vivianite, is a beauty, though few belemnites are hollow and not all hollow ones

contain such a lovely inclusion. Under a good lens with plenty of light, these bluish crystals, especially when associated with aragonite, make top quality micromounts.

Wulfenite: There are gorgeous big and little wulfenites from many lands but for some reason, the tiny micro gem-like brilliant yellow wulfenites from the Perkiomen Mine at Audubon, Pa., associated with even smaller crystals of pale green cerussite, the latter perched at times on glistening yellow wulfenites, make a lovely thing to behold under a 30X or 60X lens. The yellow brilliants are tabular, short-stout, or long and thin or thick, but all very micro. Any that may be seen with the unaided eye are somewhat distorted and off color. Few reddish ones are to be seen more closely associated with unchanged pyromorphite and these are of much different shape, being four cornered doubly terminated crystals somewhat resembling an elongated zircon. The yellower crystals are seen only in cavities containing cerussite which is often pseudomorphic in perfect form after pyromorphite. Anglesite often in brilliant gray to colorless crystals, sharply formed, are occasionally observed close to the gem-like wulfenites. A large cabinet specimen, full of cavities, with all of the crystals mentioned in this paragraph should make a gorgeous specimen but such large specimens are to be found only in Mexico or some other favored spot.

X: It marks the spot in our mineral cabinet, an empty place, awaiting a suitable crystal group. An X-ray beam should do: see Einstein's old and new theory.

Yttrium: In the form of a rare earth in some fluorescent and nonfluorescent specimens. Invisible but definately in a hard granite-like rock—gadolinite—from Colorado. Those who like to polish everything polishable will find this gadolinite rock hard enough to take a very excellent polish which will show the gadolinite inclusions and associated minerals very nicely.

Zeunerite: Lovely pearly pale green tabular crystals in and on the surface of several types of rock from the Tintic district in Utah. A torbernite-like crystal in which the radioactivity is sometimes fairly strong, nonfluorescent in its natural form, is essentially a hydrous arsenate of copper and uranium. Mr. John Parnau, of Stockton, California, sent me a most beautiful batch of specimens containing at least three forms of this very interesting mineral. A micro group of tabular pale green, glassy, perfectly formed crystals, make, not only a very interesting rare specimen, but a most pleasing one to the eye. These clean, clear, lustrous, pale green crystals, stand on edge in a nice sized, not too deep, cavity and are sufficiently divergent and transparent without encrustations of iron or any other substance that might have marred the beauty of this zeunerite micromount. Fine quality selected crystals of autunite for micro purposes, are not too dissimilar, though the fine lemon-yellow color of autunite are not quite as clear as these zeunerites from Utah. Both are mica forms and both may be in clear, perfect crystals, making exquisite micromounts. The pearliness is apparently lost in both specimens when found in such clear, delicately colored crystals. I am indebted to Mr. Parnau for such a lovely micro specimen.

The forgoing, I hope, is just a taste of what readers of things mineralogical may like to ponder over and I hope that others will take inventory of their collections and likewise pass along to *Rocks and Minerals* an account of their pet interests in minerals, whatever phase they may favor. Museums, with their deathly silent halls, filled with superb mineral specimens, cannot tell us adequately of the thrills of collecting or acquiring such wondrous specimens. But amateurs have equally interesting specimens, at least to some degree in quality, if not quantity, of superb specimens. Therefore amateurs should, through these pages, tell others of their special interests in minerals and about their pet discoveries, finds, or the acquiring of certain specimens.

Priest's 1400 Items On Display

An unusually complete 1,400-piece collection of precious and semi-precious stones and ornaments—the 20-year hobby of a St. Louis priest—went on public display for the first time this week at the Academy of Science, 4642 Lindell Blvd., St. Louis, Mo.

The collection, which ranges from shark's teeth, sea shells, and ornamental pieces of gold used by the Egyptians to diamonds, rubies, sapphires and other stones, is that of the Rev. Albert J. Prokes. A native St. Louisan, Fr. Prokes is pastor of St. John Nepomuck Catholic Church at 1625 S. 11th St.

Fr. Prokes said there are 150 categories of stones in the collection. He has them in glass cases, according to category. A chemical analysis accompanies each stone. These analyses were worked out by the priest himself.

"Most of the articles were given to me," he said today. "I started out as a kid, bringing home pretty stones, and had quite a collection by the time I was ordained. Then I really began in earnest."

He told of writing to jewelry houses all over the world, asking for defective and discarded pieces. "I knew I couldn't afford to buy perfect stones." The jewelry people responded by sending him, free of charge, many of their discards—"sometimes in lots of as many as 100."

The priest said he has no particular stone which he prizes most, "I prize the whole collection," he said. "Actually, in monetary value it's worth about $3,000," he added. "It's real value lies in its completeness."

However, Academy of Science officials don't intend to take any chances with the 48-year-old priest's collection. They've asked for and obtained special police protection for the display during its two-month stay at the academy.

(Father Prokes is a member of the Rocks and Minerals Association).

—St. Louis STAR TIMES,
Friday, May 26, 1950

WALTER W. BRADLEY

(Obituary Notice)

Walter Wadsworth Bradley, retired State Mineralogist, passed away suddenly Tuesday, April 11, 1950, as the result of a heart attack. Mr. Bradley was associated with the Division from 1912 to 1946, acting as its Chief from 1928 to 1946. Prior to his association with the Division of Mines, Mr. Bradley had practiced mining engineering in the Mother Lode, in Durango, Mexico, and in Idaho. In addition he was associate editor with T. A. Rickard on the staff of the MINING AND SCIENTIFIC PRESS.

He was graduated with the advanced degree of Mining Engineer from the University of California in 1917, having left an enviable scholastic record. Published works by Mr. Bradley covered a wide variety of subjects including ore-dressing, quicksilver resources, manganese, magnesite, and chromium, as well as numerous reports on California mines and mining districts. His works are well known to nearly all readers of California mining and geological literature. In addition to his professional interests Mr. Bradley was active in numerous East Bay and San Francisco service, choral, historical, and recreational organizations.

Mr. Bradley's sudden passing was a shock to the present staff of the Division of Mines, many members of which were closely associated with him for many years both socially and professionally. He will be remembered as a kindly, congenial gentleman who always retained his interest in mining and geology and in the Division of Mines to which he had devoted most of his life.

—State of California, Division of Mines,
San Francisco, Calif.
MINERAL INFORMATION SERVICE,
May 1, 1950

Youthful Collectors National Essay Winners

When three of the four winners in a national essay contest having nothing to do with minerals turn out to be youthful mineral collectors, it is a sign that this hobby attracts some of the most talented and alert young people in the country.

This is the case in the contest recently sponsored by Junior Scholastic Magazine. Two boys. Bruce Brooks of Barberton, Ohio, and Harold Hofer, Jr., of Denver, and one girl, Jeanne Shearer of Atlanta, won first, shared second, and won third place, respectively.

None of them knew any of the others, and only one wrote about minerals. The first award was given for Bruce's story of his collecting experiences. entitled "I Dig For What I Get." Although Harold wrote a mythical story about life on Mars, he included terms with a mineral flavor, such as "symmetrical cube" and "bi-hexapyramidical object."

URANIUM EXPLORATION IN THE UNITED STATES

Address by PHILLIP L. MERRITT
United States Atomic Energy Commission
before the Annual General Meeting
of the Canadian Institute of Mining and Metallurgy,
Toronto, Ontario, April 18, 1950

Abstract

The United States Atomic Energy Commission looks to the private prospector and the mining industry to assure the success of our uranium exploration program. We believe that industry is certain to increase its activity in the field rapidly as the economic importance of uranium to its operations is more fully realized. The contribution made by educational institutions and by other government agencies in developing and distributing information is recognized by the Commission as an important phase of the program.

Progress is being made in the discovery of ore and the development of ore-finding techniques on the Colorado Plateau, which is the most important uranium-producing region in the United States. Other areas of primary and secondary uranium mineralization, such as the Colorado Front Range, the newly discovered deposits in the Sunshine Mine in Idaho, the Marysvale, Utah, area, and the Upper Peninsula of Michigan, show promise for future production. Evaluation of potential low-grade uranium ores such as the phosphate rocks of Florida and the northwestern states, and the black shales of Tennessee and Kentucky, has been substantially completed.

The Commission's exploration program will, we believe, assure the United States of a growing supply of domestic uranium ore. Together with the results of the Canadian exploration activities, which are most encouraging, our program should provide increasing resources of this all-important material, and should further reduce our dependence on supplies from overseas.

Uranium Exploration in the United States

During and since the war, it has been my privilege to work closely with those in Canada who are responsible for the vital raw materials needed in our cooperative atomic energy program. The understanding which has developed between our two groups in this all-important enterprise has been a great source of pleasure. We in the United States are aware of the importance of the contribution made by Canada to this project, and we look forward to continuing our mutually advantageous relationship.

The impact of World War II, and the decision by Canada, Great Britain, and the United States to join in a program for the development of atomic weapons, created a sudden and immense demand for uranium minerals. Early in the raw materials program, it was evident that sufficient raw materials to fulfill wartime atomic weapon requirements could be secured from three sources: the rich pitchblende deposits of the Eldorado mine at Great Bear Lake; the Shinkolobwe mine in the Belgian Congo; and as a by-product of the vanadium industry of the Colorado Plateau in the United States. In the early part of the program, therefore, our joint efforts were directed toward obtaining immediate maximum production from these localities. The contribution made by the Eldorado Mining and Refining (1944) Limited, both in supplying and refining raw materials, was and continues to be of vital importance.

In addition, it was also obvious from the first that in this program, as in any mining enterprise, exploration activities directed toward the discovery and development of new sources of uranium ore were essential if production were to be maintained over an extended period of time. In order to satisfy obvious security requirements during the war, it was necessary to proceed with this exploration program, both in Canada and the United States, as secretly as possible. With the end of the war and the revelation that an atomic weapon had been developed, however, secrecy in exploration was no longer required. The important thing was to get on with a broadened explora-

tion program.

The United States Atomic Energy Commission and the Atomic Energy Control Board of Canada have, therefore, pushed ahead on the development of exploration programs which have enlisted the talents of industry, the individual prospector, educational institutions, and government agencies. The outstanding discoveries and developments, both in Canada and the United States during the past few years, lead me to believe that our programs are sound ones.

Exploration Program in the United States

Stimulation of the active search for radioactive ores by prospectors and the mining industry is the keystone of the uranium exploration program of the United States Atomic Energy Commission. We continually encourage private exploration activities; this is in line with the Commission's over-all policy, which recognizes that the success of the Atomic Energy Program is dependent upon complete cooperation, interest, and support by private industry. This stimulation is being carried out by the Commission through the establishment of:

1. A guaranteed price schedule for uranium-bearing carnotite or roscoelite-type of ores of the Colorado Plateau;

2. A guaranteed minimum price for high grade ores and refined products derived from such ores; and,

3. A bonus for the discovery and the production of the first 20 tons of uranium ore or mechanically produced concentrates assaying 20% or more U_3O_8 from new deposits.

In addition, we are attempting to stimulate public participation in our program by issuing responsible publicity, by distributing technical information, by giving assistance to the public through mineralogical and radiometric examinations of samples, and by offering geological advice to the public and to the mining industry.

We believe that the industry could make further contributions to our program if it would consider exploration for uranium ore as it considers searches for gold, copper, lead, or any other metal—just good business. We have found that uranium frequently turns up in unexpected places in addition to those localities which we have suspected as being favorable. The fact, therefore, that a mining company believes that its property contains no uranium does not necessarily mean that there is no uranium present. We believe that each company should take the following inexpensive steps to insure that no promising possibilities are ignored:

1. Familiarize exploration personnel with known occurrences of uranium, both through visits to areas of uranium mineralization and through published literature;

2. Include a Geiger counter as an essential piece of equipment for prospectors and mine geologists;

3. Examine mine mineral collections, specimen cases of nearby museums, mine tailing piles, and ore and mine workings, for radioactivity;

4. Check sludge and cores from all drilling operations with a Geiger counter; and

5. Check all ores or concentrates that funnel through custom mills or smelters.

The carnotite ores of the Colorado Plateau represent our best immediate source of uranium, and consequently, this area has demanded a large share of our exploration attention. The immediate problem of developing, mining, and shipping sufficient ore to maintain production in five widely scattered plants has been left to private prospectors and the mining industry. Ample ore is currently being shipped to supply these plants under the guaranteed price schedules established by the Commission. The objectives of our Plateau exploration program are:

1. To discover ore bodies in areas where it is presently unprofitable to risk private capital;

2. To obtain a better understanding of the ultimate uranium potentialities of the Colorado Plateau; and

3. To develop ore-finding criteria and techniques, including geological, geophysical, and radiometric methods, which

can be applied to the Colorado Plateau as a whole.

Another important phase of our exploration work is a nationwide reconnaissance program, in which both the staffs of the Commission and the Geological Survey are participating. This program involves the following:

1. Systematic examination and appraisal of the known mesothermal vein deposits, particularly those which contain metals commonly associated with primary uranium, such as lead, silver, and cobalt. The best areas for these activities, for the present at least, are in base metal mining districts.
2. Systematic examination of sedimentary rocks as sources of uranium deposits;
3. Examination of occurrences, called to our attention by mining companies or the public, which appear to have some promise;
4. Development of engineering, geological and metallurgical research knowledge concerning large low-grade deposits which are not now economically attractive for industry;
5. Research into such fields as analytical methods, development of new mineralogic techniques, geochemistry, and application of geophysical and radiometric methods to ore finding; and
6. Development of new and improved instruments—airborne, carborne, and footborne—for the detection of radioactivity in field reconnaissance and in drill holes and mine workings; together with the improvement of laboratory instruments.

In developing our exploration program we have recognized that thorium, at some time in the distant future, may be an important source of fissionable material, and we have therefore undertaken a limited program of evaluation of thorium resources. The Atomic Energy Commission, however, presently requires only a limited amount of thorium for research purposes, and consequently our exploration program is primarily directed toward the search for uranium ores.

Areas of Special Interest

I should like to take this opportunity to tell you in a little more detail about our exploration program and its results so far, particularly with reference to several areas that have proved to be of special interest. Uranium seems to be distributed much more widely than we had suspected; these areas are widely separated geographically and represent a variety of geological conditions. In addition to the Colorado Plateau, there are promising indications in the Colorado Front Range, in the Coeur d'Alene Mining District of Idaho, in the Upper Peninsula of Michigan, in Marysvale, Utah, and in various low-grade deposits in Tennessee, Kentucky, Florida, Wyoming, Montana, and Idaho.

Colorado Plateau

The problem of finding ore on the Colorado Plateau is unique and challenging, and the experience gained in other mining districts is of little help. The Plateau is a physiographic province embracing about 130,000 square miles of eastern Utah, northwestern New Mexico, northeastern Arizona, and that portion of Colorado west of the Rocky Mountains. This vast area is covered almost entirely by a thick, generally flat-lying series of sedimentary rocks. Over most of the uranium-bearing portion of the Plateau, erosion has produced a youthful topography of the mesa and canyon type with relief exceeding 2,000 feet. Although formations as old as Pennsylvanian are exposed, most of the rocks, which consist almost exclusively of sandstones and shales, vary in age from Permian to Tertiary. Uranium mineralization has been found as low in the stratigraphic column as the Permian Coconino sandstone and upwards through the Morrison sandstone of the Jurassic, but the most important producers have been the Triassic Shinarump and the Entrada and Morrison of Jurassic age.

The most important Triassic formation exploited to date has been the Shinarump conglomerate. The deposits of the Shinarump are represented by the copper-uranium ores of White Canyon, Utah, the asphaltic carnotites of Temple Mountain, Utah, and the carnotites of north-

western Arizona. Because of the remoteness of these deposits from populated areas, prospecting has not been as intensive in these localities as in the more accessible regions of the Colorado Plateau.

The ores of the Entrada sandstone are located near Rifle, Placerville, and Rico, Colorado, and are essentially vanadium deposits carrying about 1.5% V_2O_5 and generally less than 0.10% U_3O_8. The ore zones form undulating layers of great lateral extent but of variable thickness.

The Salt Wash member of the Morrison formation is by far the most important uranium producer of the Colorado Plateau. The Salt Wash extends over an area of more than 40,000 square miles of the Colorado Plateau; it is more than 500 feet thick in some places but averages nearer 250 feet. It is of fluviatile origin and consists of intercalated sandstone and mudstone lenses in nearly equal proportions. Hundreds of individual deposits of carnotite are scattered throughout the sandstone lenses of the Salt Wash. An ore body containing a few thousand tons of ore may be considered large, but one mine, consisting of several ore bodies of exceptional size, has yielded more than 150,000 tons of ore. The major ore bodies occur in a northeast trending belt extending from Blanding, Utah, through Uravan, Colorado, to Gateway, Colorado, distributed in groups or clusters along secondary trends not necessarily parallel to the main belt.

Most of the ore deposits are irregular, and many are roughly tabular, with their greatest dimensions essentially horizontal and parallel to the bedding of the enclosing sandstone. Although they generally conform to the bedding, they tend, in part, to cut at low angles across the stratification. In many places, the ore bodies thicken to form concretion-like masses which are locally referred to as "rolls." Such "rolls" have yielded a large part of the ore derived from the Salt Wash. The ore bodies are invariably associated with organic matter in the form of fossilized tree trunks, branches and leaves. The richest ores often consist of logs replaced by uranium and vanadium minerals.

All of the uranium deposits of the Salt Wash contain vanadium. The ore-forming constituents, which include such minerals as carnotite, calcio-carnotite, corvusite, and hewettite, are deposited around sand grains. The bulk of the ores mined contain about 1.5% to 2.0% V_2O_5 and 0.20% to 0.40% U_3O_8.

It is readily apparent that mineral deposits of the size, character, and irregular distribution of the carnotite ore bodies present unusual problems in exploration. Production has always started at the exposures along the rims of the mesas, and the ore bodies have been traced back by mining development and closely spaced drilling. The rim deposits and their inward extensions have a limited life, and therefore the future productivity of the region is dependent upon the discovery of ore deposits away from the rims of the canyons where there are no ore outcrops. Our exploration program has been designed specifically to develop ore-finding criteria and to discover ore in those areas where industry does not find it profitable to operate under present conditions.

Owing to the difficulty experienced to date in the development of satisfactory ore-finding techniques, we have felt that a dual exploration and research effort would provide the best possibility of attaining ultimate success. Consequently, our Plateau exploration program is being carried out by two cooperative groups, one under the direct guidance of the Commission and the other sponsored by the Commission but under the immediate direction of the Geological Survey, each group operating in different areas to avoid duplication of effort.

Since the inception of this program in 1947, nearly 500,000 feet of drilling has been accomplished in the combined operations. The program for the current year calls for approximately 300,000 feet of drilling, about one-half of which is to be carried out by the staff of the Geological Survey and the other half by the staff of the Commission.

The results of the drilling have been satisfactory so far as finding ore is concerned, and geological data that will be helpful in further exploration are gra-

dually being developed by both organizations. However, although useful criteria are beginning to take shape, the best guide to new ore on the Colorado Plateau is still the occurrence of known ore.

In addition to purely geological methods of ore finding, various methods are being tested that utilize the disintegration products of uranium. Such possibilities include the detection in drill cores of radon and radiogenic helium and lead, the definition of areas showing higher than average surface radioactivity, and the radiometric logging of drill holes, using either Geiger-Muller tubes or ionization chambers.

Colorado Front Range

The second area of special interest to the Commission is the "Mineral Belt" of the Colorado Front Range. This area extends from southwest of Idaho Springs to Jamestown, Colorado, and contains numerous primary vein deposits which for a century have produced ores of gold, silver, lead, zinc, tungsten, fluorite, and some uranium. These deposits have provided our only domestic production of pitchblende ores. The mines of Quartz Hill in this area, near Central City, appear to have yielded 325 tons of pitchblende ore, containing about 50 tons of U_3O_8, from 1872 through 1919. No significant production has been recorded since that period.

The rocks exposed in the Front Range are largely granite, gneiss, and schist of pre-Cambrian age. At many places the older rocks are cut by late Cretaceous or early Eocene stocks and dikes of intrusive "porphyry." The major fault system, thought to have been formed prior to the porphyry intrusion, consists of persistent northeasterly faults, some of which can be traced for 25 miles and extend outside of the mineralized area. A secondary system consists of smaller fissures, less than a mile in length, and is probably post-porphyry in age. These fissures are commonly filled with vein material, and in most cases they provide the loci of the ore deposits in that region.

The most northerly occurrence of uranium is in some of the fluorite mines in the Jamestown district, where the exposed veins are filled with brecciated sulphides and fluorite of several generations. Finely disseminated uraninite occurs in the fluorite.

About 14 miles southwest of Jamestown, pitchblende has been found on the 1040 foot level of the Caribou Mine. Here the pitchblende is associated with sulphides of lead, zinc, and silver.

The most widespread occurrences of pitchblende in the Mineral Belt are in the mines of Quartz Hill near Central City. In this area, comprising some four square miles, there are at least seven mines in which pitchblende has been known to occur in primary veins closely associated with pyrite, sphalerite, tennantite, galena, chalcopyrite, and quartz. The veins have been worked principally for the gold values contained in the late sulphides.

Farther to the south, in the Idaho Springs district, the lowest level of the Joe Reynolds vein has been found to carry some botryoidal fragments of pitchblende embedded in a matrix of quartz, siderite, galena, and chalcopyrite. Some torbernite and other secondary uranium minerals have been found at the surface in the Peabody veins.

Unfortunately, many of the mines in the Colorado Front Range are now idle, and consequently their lower workings are generally inaccessible. Geologists of the Geological Survey and the Commission are working together to relate the known occurrences of pitchblende to the various components of the complex geology in which they are found. This program includes radiometric reconnaissance, geological mapping, sampling, chemical and spectographic analyses, together with studies of the various dikes and country rock, and of the properties of the primary vein minerals. It is hoped that this combined field and laboratory study will develop guides that will be useful in further exploration and development of this area and other region of primary uranium mineralization.

Sunshine Mine, Coeur d'Alene District, Idaho

One of the most interesting recent discoveries of primary uranium ores in the United States was made in the Sunshine Mine in the Coeur d'Alene district in

July 1949 by Ernest E. Thurlow, a Commission geologist, accompanied by Raymond Robinson, chief geologist of the Sunshine Mining Company, and Thomas Gillingham, geologist for the Bunker Hill and Sullivan Mining and Refining Company. The discovery was made during the course of the Commision's reconnaissance of selected western mining districts.

The Coeur d'Alene mining district is underlain by the pre-Cambrian Belt Series, which consists of quartzites, slates, and impure limestones that are highly faulted, folded, and intruded by granitic stocks and masses of probable Cretaceous age.

The Silver Belt, in which the Sunshine Mine is located, occupies a fairly well-defined zone bordered on the north by the Osburn fault and the south by the Big Creek fault. The veins of the Sunshine Mine are closely associated with the Silver Summit fault and cut the overturned limb of the asymmetric Big Creek anticline, the largest and most persistent fold in the district.

The initial discovery of pitchblende was made in a vein some 300 feet in the footwall of the Sunshine vein on the 3700 foot level. Subsequent discoveries have been made in highly sheared stringer zones in the footwall of the Sunshine vein proper on both the 3000 foot and the 3100 foot levels. Between the 3100 and 3700 foot levels, the mine workings have not been extended far enough to the west to determine the continuity of the pitchblende zone found thus far.

The pitchblende is generally associated with pyrite, tetrahedrite (freibergite), arsenopyrite, siderite, and fine-grained hematite which gives the wall rock a red coloration. Detailed mineralogical studies of the veins are now in progress.

The mining company has embarked on a comprehensive development program which consists of drilling, clearing out caved workings, and underground development, in order to delineate the radioactive zones and determine the commercial possibilities of the occurrence.

Upper Peninsula of Michigan

That portion of the pre-Cambrian shield which extends into parts of Minnesota, Wisconsin, and Upper Michigan has been considered by the Commission to be a fruitful area for prospecting for primary uranium-bearing veins. Our hopes that the uranium province on the east shore of Lake Superior, in Canada, would extend westward into the United States were encouraged by the discovery of a uranium-bearing vein in Baraga County in the Upper Peninsula of Michigan in August 1949. The discovery was made by Eiler Hendrickson, a geologist who was employed by the Jones and Laughlin Steel Corporation. Samples of the radioactive ore submitted to the Commission's New York Mineralogical Laboratory were found to contain uraninite.

The discovery, in a gorge in the Huron River, is in a silicified shear zone five to fifteen feet wide. The uranium mineralization, as the outcrop, was confined to a calcite-bearing zone about one and one-half feet thick in the footwall of the shear zone. This discovery is particularly interesting because it represents a definite indication that concentrations of uranium minerals exist in the area. We have been assured by the Jones and Laughlin Steel Corporation that active exploration will begin when weather conditions permit.

Marysvale, Utah

Another group of uranium deposits, which appear to be assuming considerable significance, was discovered early in 1949 in the vicinity of Marysvale, Utah, by Pratt Seegmiller, on claims previously staked for fluorite. The claims which appear to be most promising, at this stage of exploration, are being developed by the Bullion-Monarch Mining Company and the Vanadium Corporation of America. The deposits are situated in a quartz-monzonite stock which has been only meagerly prospected, and consequently further intensive prospecting in this stock, as well as in other stocks in the vicinity, may well reveal other interesting deposits. The Commission has established an ore-buying station in the area, and we intend to follow closely the course of the development work.

The rocks in the Marysvale district con-

sist chiefly of Tertiary volcanics, from basaltic to rhyolitic in composition, intruded by stocks of quartz-monzonite. All of the known uranium deposits are found in hydrothermally altered zones in the quartz-monzonite. On the claims being developed by the Vanadium Corporation of America, the zone of hydrothermal alteration, which embraces the main deposit, follows an elongate and well-defined fracture zone. On the Bullion-Monarch Mining Company claims, the altered monzonite zone is intruded by a felsitic dike and the alteration and fracturing extend over a wide area with no apparent directional trend.

The altered zones, near the surface, carry fluorite, very sparse amounts of zinc minerals such as smithsonite and hydrozincite, and some pyrite, quartz, opal, and calcite. The principal uranium mineral, which has been deposited along tight fractures and other minor openings, is autunite, with minor amounts of schroeckingerite, torbernite, and metatorbernite also occurring. In addition, uraninite has recently been identified in the workings of a prospect operated by the Vanadium Corporation of America, at a depth of about 70 feet below the collar of an inclined shaft. The presence of uraninite, a primary mineral, indicates hydrothermal origin of the deposit and encourages the belief that mineable ore will be found in the district at a considerable depth below the zone of oxidation. Drilling to date has been shallow, but further drilling, trenching, and prospecting by shallow shafts are now in progress.

Low-Grade Deposits

Finally, the Commission has given special attention to the concentrations of uranium in certain types of marine sediments, particularly black shales and phosphorites. Many sediments of this type contain 0.01% to 0.02% uranium, and similar percentages have been found in some Tertiary lignites. Although these very low-grade deposits represent huge reserves, the problems involved in recovering their uranium content are formidable, and they will probably not be utilized unless an extreme emergency develops or unless the uranium can be obtained as a by-product of some other industry.

This does not mean, of course, that we can afford to ignore these low-grade materials entirely, and they have been under scrutiny since 1946, when the Manhattan District began active exploration and research programs on such ores. This exploration work has been enlarged under the sponsorship of the Atomic Energy Commission, and is currently being carried out on behalf of the Commission by the Geological Survey.

In the case of black shales, we have found that the highest-grade deposits are the relatively thin shales of pre-Mesozoic age, rich both in bituminous matter and sulphides, and containing little or no carbonate. The Devonian and lower Mississippian Chattanooga shales of Tennessee and Kentucky are the most promising rocks of this type yet explored. The highest concentration of uranium in phosphates occurs in the deposits of the Pliocene Bone Valley formation in Florida and the Permian Phosphoria formation of Wyoming, Montana, and Idaho.

These phosphate formations also constitute the principal source of raw materials for the phosphate fertilizer industry, and in studying the occurrence of uranium in phosphorites we have utilized a vast amount of exploration data furnished by mining companies and supplemented by pit and mill sampling.

We have now almost completed our program of exploration on these very low-grade deposits. The principal objective of the program has been to determine what reserves of uranium are available in such deposits, what specific areas show the highest grade of ore and appear to be most susceptible to mining, and what physical and chemical factors have been most important in controlling origin and distribution.

Conclusion

I have outlined the principal areas of activity in the program of exploration for uranium in the United States. The results so far have been encouraging, and lead us to believe that as the information and techniques now being developed become

more widely known to prospectors and the mining industry, we can expect an increasing number of gratifying discoveries.

To sum up briefly, our program has accomplished the following results:

1. It has located many additional deposits of carnotite ore bodies on the Colorado Plateau as a result of intensive exploration and mining activity.

2. It has established the fact that primary uranium vein deposits do exist in the United States. These have been found in the Colorado Front Range, in the Coeur d'Alene mining district in Idaho, and in the Upper Peninsula of Michigan. It seems reasonable to expect that as these areas and others are more fully studied, additional deposits of primary uranium minerals will be found in quantities that will make mining operations profitable.

3. It has led to the discovery of numerous occurrences of both primary and secondary uranium minerals in western areas off the Colorado Plateau, such as those at Marysvale, Utah. Several of these occurrences are beginning to show more promise, and it is probable that some of them may lead us to important deposits.

4. It has developed extensive information concerning low-grade uranium deposits in shales and phosphates, and this information indicates that under certain conditions it might become feasible to mine and recover uranium from these very low-grade ores. Undoubtedly, such deposits constitute a reserve that may in the future become a significant source of uranium.

The Commission does not subscribe to the theory that exploration for uranium should be controlled and operated exclusively by the government. Nor do we wish to monopolize activities that can appropriately be carried on by other government agencies or by educational institutions. As we see it, our job is to assist and encourage private prospecting and mining in areas which can be profitably developed; to point out new areas of possible commercial interest; and to carry out exploration in areas which, for the present, do not appear to be commercially exploitable.

The Commission's exploration program will, we believe, assure the United States of a growing supply of domestic uranium ore. Together with the results of the Canadian exploration activities, which are most encouraging, our program should provide increasing resources of this all-important material, and should further reduce our dependence on supplies from overseas.

WORLD'S LARGEST SANDSTONE QUARRY

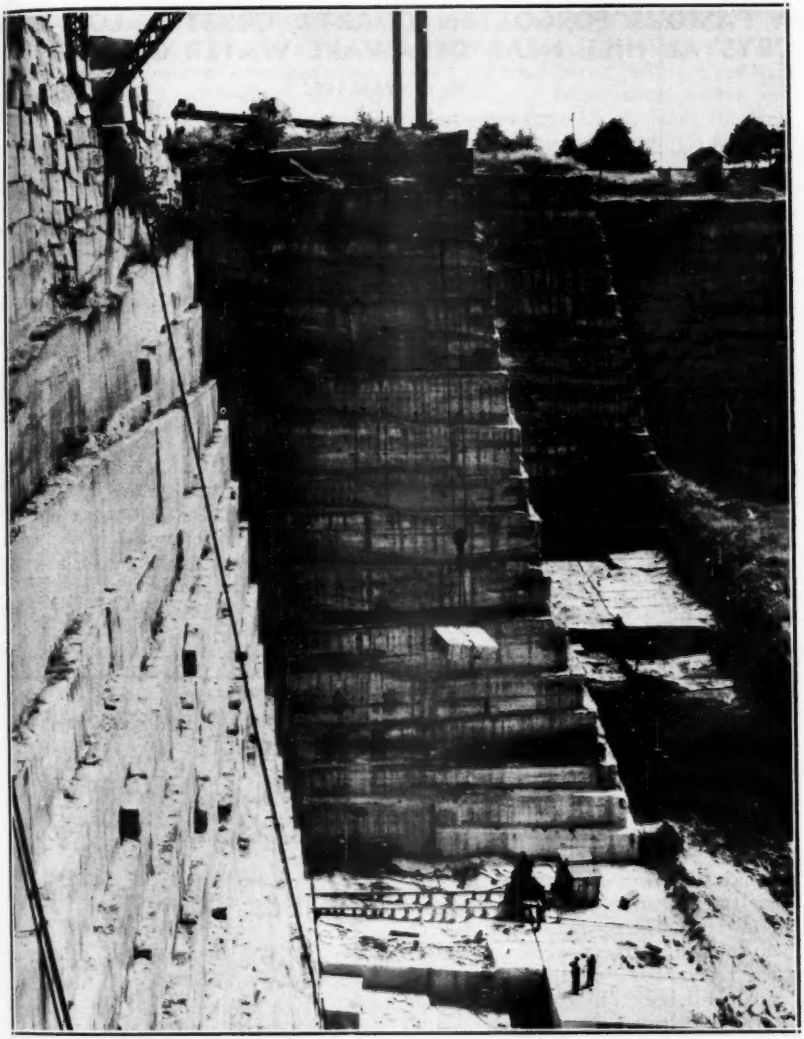
A hundred years of quarrying sandstone for grindstones and building has produced the "Gray Canyon" at South Amherst, Lorain County, Ohio. This largest sandstone quarry in the world is 3090 feet long, 1056 feet wide, and averages 160 feet deep. Its perimeter is more than a mile and a half.

Out of this hole has come nearly half a billion cubic feet of sandstone. The Cleveland Quarries Company, the operators, ships about two million cubic feet of stone a year, enough to load 2500 freight cars.

This mineral treasure was discovered in 1842 by John Baldwin, a pioneer settler of that part of the Western Reserve in Ohio, afterwards founder of Baldwin-Wallace College. Grindstones were the first product, and "Berea Grit" became famous. Other quarries were opened in Cuyahoga and Lorain counties, and the sandstone was shipped widely for building purposes.

Stripping the overburden and weathered stone exposes the gray sandstone, 100 or more feet deep, from which the building blocks are removed and sawed into shape. Parts of the deposit are buff or brown. The gang saws dress the blocks and turn out curbing, flagstones, grindstones and other special shapes.

Berea sandstone has gone into buildings from the Atlantic to the Pacific.



"Gray Canyon", the world's largest sandstone quarry, at South Amherst, Ohio.
(Photo by Ohio Department of Highways, released by Ohio Development and Publicity Commission)

Some of the larger ones are the Yale University fine arts gallery; the auditorium at Long Beach, California; the Greenbrier Hotel at White Sulphur Springs; and the John Hancock Insurance Building in Boston. Berea stone crossed the boundary line to make the Parliament Building in Ottawa, Canada.

Editor's Note: The world's largest limestone quarry is in Rogers City, Presque Isle Co., Mich. (See Jan-Feb, 1950, R & M, p. 42) and the world's largest sandstone quarry is in South Amherst, Lorain Co., Ohio. In what state or country is the world's largest granite, slate, or basalt quarry? Can any reader give us this information. Of course we would appreciate a few notes on each of these quarries and on any other which is world famous for size.

A FAMOUS FORGOTTEN QUARTZ CRYSTAL LOCALITY CRYSTAL HILL NEAR DELAWARE WATER GAP, PENNA.

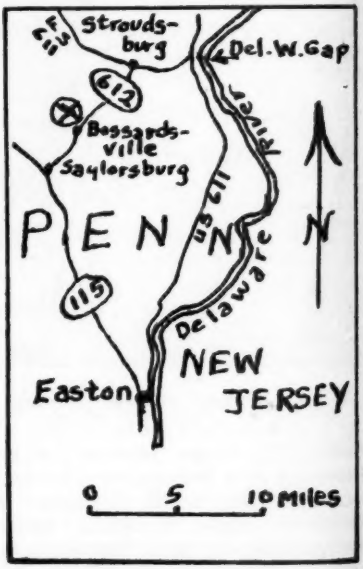
By O. IVAN LEE

2684 Boulevard, Jersey City 6, N. J.

Although quartz is our commonest mineral, no species is deservedly more popular by reason of its infinite variety of color and form* as well as its durability, and rock crystal in particular, has a strong appeal to both the veteran collector and the beginner, not to mention the layman. There is no doubt whatever that a casual encounter with quartz crystals such as the famous "Herkimer diamonds" has initiated untold numbers of people into the delights of collecting and studying minerals.

This story rightfully begins on Saturday, June 18, 1938, when the newly formed Plainfield Mineralogical Society (now the New Jersey Mineralogical Society) on its first field trip at the Kinkel Quarry near Bedford, New York, adjourned for a well earned lunch with time out for numerous animated individual discussions. Suddenly, it was noted that Mr. George W. Gehman, then of Easton, Pa., was nonchantly emptying the pockets of his coat of a handful of beautiful glittering transparent quartz crystals. At once, those nearest swarmed around him like flies around a honey pot, with excited cries of "Where did you get them?" "Where did they come from?" to which Mr. Gehman replied: "I found them recently in a woodchuck hole at Crystal Hill! There were around 700 of them of which these were overlooked when I got home." "And where might Crystal Hill be?" "In Pennsylvania, not far from Delaware Water Gap." "And how do you get there?" "Well, it's not a mine or quarry or even a hill one can point out, but just an obscure spot in the woods." "Well, then, will you take us there and be our guide?" Mr. Gehman would be delighted, and so the next Society pilgrimage was made to this fascinating and delightful place, and many members have since made repeated trips since it's one of those localities which grows on one.

Crystal Hill has been known a long time, and is mentioned in Samuel G. Gordon's *"The Mineralogy of Pennsylvania"* (Philadelphia, 1922), on p. 211 under "Monroe County" where Crystal Hill is described as being "Just west of Stormsville 7 miles west of Delaware Gap; Hamilton township." Only one article has been written concerning it, by Goodwin, in THE MINERAL COLLECTOR, 10,5, 1903. Unfortunately, this was in the "horse and buggy days" and such sketchy directions as are given are completely inadequate today. Also, the locality is not well known locally.



Map showing Crystal Hill locality (X) just north of Bossardsville, Penn.

*Smithsonian Institution Bulletin 118, *Handbook and Descriptive Catalogue of the Collections of Gems and Precious Stones in the United States National Museum*, by George P. Merrill, 1922, p. 202, lists over 200 different names for quartz!

The following specific information, though not adequate perhaps for posterity, will at least enable the contemporaneous collector to find the spot where the crystals grow, and a cool place it is on even a hot day. What you may find is your luck—but it's always fascinating—and rewarding!

Field Directions for Finding Crystal Hill, Monroe County, Pennsylvania

Leaving Stroudsburg on Route 611, 612, measure 5.5 miles from the last stop light (where 611 turns sharp right), *staying on* 612. Approaching the point, a brook (Cherry Creek) will be seen in the valley on the left and beyond it a small white church. At the point, the road is down hill, a yellowish colored house is on the left, and ahead on the right is a small brook pond with barns on the far side.

On the right, also, a secondary road leads back N. E. at an acute angle. 0.6 mile up hill from this junction, a grassy lane will be seen on the right in which several cars may be parked. Following this lane on foot uphill for a short distance, pass into the field beyond where the lane makes a sharp left turn. Ahead will be seen a small isolated wood between a field on the left, and a cornfield on the right. Pass through the cornfield and beyond the small wood until one comes to a second and larger wood with a field and fence on the left. Crossing the fence, keeping now to the left of this wood and continuously going up grade, follow the wood until the top of the hill is reached marked by a large dead tree, at least half a mile from the road. Directly opposite and just within the woods, are the Crystal Hill "diggings" where one may dig a double handful of limpid sharp quartz crystals in two hours time, sometimes two inches long and not infrequently doubly terminated. No two are exactly alike, and diligent searching, especially by sub-surface exploration, will reveal excellent drusy matrix specimens as well. The most convenient tools are an old cushion, an iron claw garden weeder and a trowel and/or a hoe. What ho, varlet? Odds bodkins, knave, the long hoe with the wooden handle!

From Saylorsburg on Route 115 from Easton, proceed N. E. to a point 0.7 mile beyond Bossardsville, then turn up road at left 0.6 mile to lane on right leading to Crystal Hill.

Happy hunting!

MARSHALL PLAN AIDS ALGERIAN MINING

Washington, May 2, 1950—A new search for copper, manganese, lead and zinc now is being conducted in the desert and mountains of Algeria with the aid of Marshall Plan dollars.

The Economic Cooperation Administration said discovery of the metals would give Algeria a quick opportunity to earn badly-needed foreign currencies.

Thus far, French geological crews, working under the supervision of the Algerian Mineral Research Bureau, have been furnished about $1,140,000 worth of American equipment. The bulk of the equipment consists of mobile compressors, miscellaneous geophysical apparatus and drilling machinery. The crews are at work in the Sahara desert and the Atlas mountains. French officials estimate that only about 10 percent of Algeria—a country four times the size of France—has been prospected to any great extent.

In addition, about $3,604,000 worth of Marshall Plan equipment is helping to modernize existing Algerian mines. Algeria's major lead mine is being converted from an underground system of mining to an open-pit operation, and the Ouenza open-pit iron mine, Algeria's largest ore producer, is being modernized to boost production from a current two million tons annually to 2.5 million tons.

Other mining programs, including electrification and road building, are being financed with equivalent of $2,625,000 in counterpart funds—francs deposited by the French Government to match ECA direct dollar aid.

A NEW MINERAL LOCALITY IN BALTIMORE, MD.

By JACK KEPPER
5100 Belle Ave., Baltimore 7, Md.

For the past few years a water tunnel has been dug under the city of Baltimore, Md. Five shafts have been sunk at various spots. The rocks brought out of the earth are usually used as fill material near the shafts. Many fine minerals have been found at these dumps. Of all the dumps the one at the city line on Liberty Rd. (Powder Mill Shaft) is probably the best collecting area. Actually this locality consists of minerals from two shafts, the Powder Mill Shaft and the Old Tower Shaft which is further out on Liberty Rd.

I am very fortunate in not living too far away from this locality. I have made countless trips to the dumps ever since the Powder Mill shaft was begun two years ago.

The basic rock is gabbro. From the minerals found here the tunnel evidently passed through a pegmatite dike. Serpentine and a few minerals associated with it, mainly picrolite and actinolite, were brought up by the Old Tower Shaft. At present twenty-five minerals are known to be found at this locality.

The zeolites are particularly prevalant here. White laumontite crystals were the first zeolite to be found here. Last spring I found a plate of trapezohedral analcite crystals about ¾ inch across. (see illustration). The larger crystals are milky white, but some of the smaller ones are water clear. Soon after this I found a plate of sheaf-like crystals of brown stilbite along with a plate of small, clear deformed scolecite crystals. Under the microscope the monoclinic scolecite appeared as prismatic, twinned crystals the faces of which were striated.

Recently I found another zeolite which appears to be erionite (Smith—"Mineral Identification Simplified" page 209 and Dana's Textbook—page 656). Only a few grams of the mineral were found making it difficult to test it. The mineral consists of white fibers found on scolecite. It has a pearly luster and is very soft. Under the microscope the fibers appear translucent. With cobalt nitrate in the flame test it turns to deep blue indicating alumina. It fuses to a clear glassy bead in the blowpipe. As far as I know the mineral is a rather rare zeolite and it never before has been found in Maryland.

Another mineral frequently associated with the zeolites is feldspar. Pale pink orthoclase crystals up to two inches in size are found. Some of the crystals show twinning. The crystals evidentally occurred in a pocket as they are only found in one spot on the dump. The crystal in the illustration is the largest one found so far.

Group of analcite crystals (top) and a loose feldspar crystal (bottom), both from the Powder Mill Shaft, Baltimore, Md.

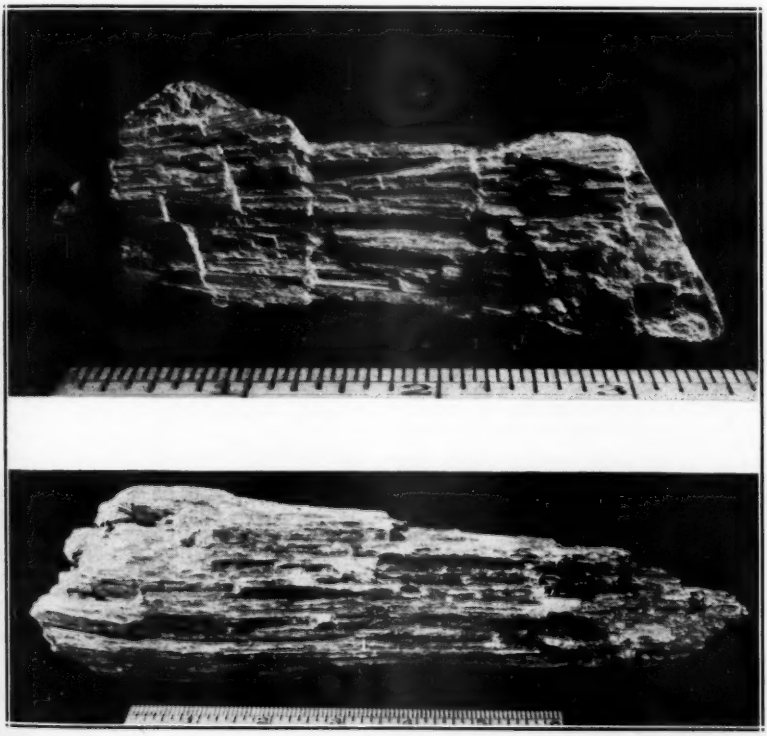
Two interesting minerals are found together in cavities of analcite. The first mineral is greenish-white prehnite. It is usually found in its globular form, but a few small, tabular crystals of it were also found. A few epidote crystals were found coated with it. The second mineral is brown, translucent calcite cleavages. These cleavages fluoresce a brilliant yellow under the purple-x bulb. In connection with this, some brown granular calcite found by itself on gabbro was found to fluoresce a weak yellow.

Some very fine brown epidote crystals were found in analcite. Chlorite crystals are frequently found associated with the epidote. Some of the smaller epidote crystals are transparent. Several fine specimens of deeply furrowed, prismatic gray zoisite crystals were found in gabbro (see illustration).

Another recent occurrence is many dodecahedral and trapezohedral almandite garnets in chloride schist. A few interestingly distorted dodecahedrons were observed. The crystals range in size from 1/8th inch to 3/4 inch. The garnets are deep red to black in color and many of the smaller garnets are transparent. Almost every piece of chlorite schist I picked up contained eight or ten garnets of fair size.

Specimens up to two and a half feet long and six inches wide of dark green picrolite have recently been found. Silky white chrysotile is found on most of the specimens. Actinolite crystals were also found associated with the picrolite.

Pyrite crystals up to a half inch are occasionally found. One rather interesting specimen was found. The specimen consisted of a piece of calcite surrounded



Two nice specimens, zoisite (top) and picrolite (bottom) from the Powder Mill Shaft, Baltimore, Md.

by small laumontite crystals which in turn were supporting several small, perfect pyrite cubes on their terminals. Under the microscope this specimen was very impressive. Marcasite and chalcopyrite have also been found in small amounts.

The following is a complete list of the minerals found at this locality so far: analcite crystals, laumontite crystals, scolecite crystals, stilbite crystals, erionite, feldspar crystals, epidote crystals, zoisite crystals, prehnite crystals, fluorescent brown calcite, calcite crystals, garnets, pyrite crystals, marcasite, chalcopyrite, picrolite, actinolite crystals, bronzite, tourmaline crystals, muscovite crystals, biotite crystals, phlogopite, chlorite crystals, hornblende and serpentine.

This locality is an interesting place for a rockhound to visit. It has proven a very interesting as well as a fertile collecting ground to me and I hope to find more new minerals as time goes on.

LINTEN B. GREENE

MINERAL COLLECTOR AND DEALER

Linten B. Greene, of Spruce Pine, N. C., has been a dyed-in-the-wool rockhound for over 30 years and has covered most of the state in his quest for minerals. Mr. Greene has the characteristic which will identify every true mineral lover: the inclination to "help others to know and learn more about minerals and their location." This facet of Greene's personality is illustrated by his work with the schools and the students in the Spruce Pine district: The Harris High School has been sending their students, with a teacher, in groups of 15 in the morning and afternoon to Mr. Greene's Mineral Shop for lectures on, and the discussion of, minerals. Mr. Greene has found that the students are extremely interested, even in composition and crystallization. One important feature of these meetings is the instruction on the handling and care of valuable gems and specimens.

Mr. Greene has given a blanket invitation to all those interested in minerals to come and see his collection and visit at the shop. (Located at the intersection of Highway 26 and 19E, west end of the bridge.) There are N. C. gems and specimens including beryl xls of many colors. Also gems cut from aquamarine, emerald, golden and green beryl. Garnet xls and gems. Moonstone, sunstone, oligoclase, amazonstone, and albite. Rock xls, smoky quartz, rutilated quartz, amethyst, and quartz with water, mud and other inclusions. Also specimens of uranium ores. There is a fluorescent collection with willemite, calcite, autunite, hyalite, and others represented. Mr. Greene not only has gems and specimens to sell, but as a collector there are many others that he would like to buy. Include Greene in your summer tour.

—Carolina Mineral Notes

June 1950

Produce New Series Of Research Microscopes

Rochester, N. Y. — A new series of research microscopes and accessories that permit exhaustive study of a wide variety of specimens, have been developed by Bausch & Lomb Optical Company.

Known as the Series "E." all models have an inclined binocular body that can be interchanged with a graduated monocular draw tube for photomicrography, micro-projection and other research applications. The draw tube is adjustable and graduated from 146mm to 172mm in tube length.

Three types of substages are also provided for routine, specialized and most critical research.

Other features include a deeply curved arm that allows ample clearance for various specimens and full rotation of the microscope stage, coated optical elements that afford maximum light transmission, and a low position, fine focusing adjustment that is only 70mm above the table level.

The latter is the "lowest fine adjustment control on any microscope available today," according to Gordon T. Hammond, of Bausch & Lomb's research microscope staff.

Among the many available accessories which were developed especially for atomic energy research, food control, development of new drugs and biological studies are: condensers for phase contrast and dark field observation, disc polarizers and analyzers, a first surface aluminized plano mirror for single reflections and ultra-violet illumination, special slide holders and illuminators.

One of the Best!

Editor R & M:

Rocks and Minerals is an excellent magazine. One of the best, we think.

M. E. Hascall
La Grande, Ore.

June 12, 1950

WORLD NEWS ON MINERAL OCCURRENCES

Items on new finds are desired. Please send them in.

Alabama—The U. S. Bureau of Mines published in March of this year, Reports of Investigations 4660, entitled, Investigation of Gilley Fluorspar Deposits in Cherokee County, Alabama, by James F. O'Neill.

It is interesting to note the occurrence of fluorite worthy of special investigation this far south. The deposit is 17 miles east of Gadsden, 50 miles northeast of Birmingham, in Cherokee County, located in West ½, West ½ of Section 16, Township 12 South, Range 9 East, and is owned by J. C. Gilley, RFD No. 1, Piedmont, Ala., who plowed up fluorite here in 1900. The fluorite is green, and about one short ton has been shipped to a small furnace in Gadsden. The mineral occurs in Lower Cambrian limestone, referred to as the Conasauga, which has been intensely folded here. The fluorite occurs in crushed and fractured areas, perhaps associated with faulting — Georgia Mineral Society *News Letter,* March-April 1950, p. 63.

Arizona—J. W. Bradley, of The Bradleys, 4300 Budlong Ave., Los Angeles 37, Calif., sent R & M a loose one inch rock crystal containing tiny scheelite crystals. The specimen was collected some years ago by Mr. Bradley, and the locality is near Dragoon, Cochise Co., Ariz.

These scheelite inclusions in rock crystals are rare and make valuable specimens for collection. Mr. Bradley is hopeful of revisiting the locality in the not too far future so that he can collect a supply of the crystals for their stock.

The scheelite is pale brown in color and fluoresces blue (through the quartz) under the Mineralight; in addition the quartz crystal has a colorless phantom in it.

Arkansas—The most productive area for barite in the U. S. is Magnet Cove, Hot Springs Co., Ark. Here barite occurs in the Stanley shale of Pennsylvania age on both limbs of a syncline. The ore bed is 30 to 40 feet thick and is a replacement for limestone with the less soluble shale, flint and chert mingled with the barite.

California—R & M received a letter dated March 22, 1950, from R. F. Henley, 4075 19th St., San Francisco 14, Calif., part of which reads as follows:

"Clarence (Crane) and I have just returned from another "yaunt in the yeep" to Trona and Death Valley (both in California) and I have been busy for two days putting up specimens of the "loot" collected for mailing to my friends. I am sending you a box with four groups of colemanite crystals from Death Valley and six hanksite crystals from Searles Lake (at Trona). Most of the colemanite was badly used in digging but I picked out the best I could. The hanksite crystals I rubbed up with an oiled cloth because being a mineral soluble in water it might disintegrate and I was told to give them the oil treatment. (Ed. Note—all specimens very good).

"I intend to write up the trip for you and will do so at my earliest convenience."

John S. Albanese, P. O. Box 536, Newark 1, N. J., donated to R & M a very nice specimen of crystallized cinnabar which comes from the Culver-Baer mine, Sonoma Co., Calif.

Colorado—An interesting article, "Cordierite in pegmatite near Micanite, Colorado," by E. William Heinrich, appeared in the March-April, 1950, p. 173-184, issue of THE AMERICAN MINERALOGIST (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.)

The Micanite pegmatite district lies across the Park-Fremont County line in south-central Colorado, a few miles northwest of the site of the former village of Micanite. The pegmatite of the Micanite district contains unusually large

masses (as much as three feet across) of cordierite (iolite), which is altered in varying degree to pinite, consisting chiefly of muscovite, chlorite, and biotite, and traces of garnet, zoisite, and tourmaline.

John S. Albanese, P. O. Box 536, Newark 1, N. J., donated to R & M two quartz specimens—groups of milky quartz and rock crystals—both coming from Hans Peak, Colo. This is a new locality to us. Will some Colorado reader tell us in what county is Hans Peak and, if possible, send us a few notes on the locality?

Connecticut—Nice pinkish masses of zoisite (thulite) have been found on the top of Walkley Hill, Haddam, Middlesex Co., Conn. Have any readers visited this locality lately?

Delaware—Quartz crystals, loose in the soil, have been reported from around Newark, New Castle Co., Del. We would appreciate some information on the locality if any reader is familiar with it.

Florida—Colorless drusy crystals of calcite in cavities of brownish compact limestone, have been found at Dunnellon, Marion Co., Fla., by Mrs. Rena Allen, 151 So. Penn. Dr., Daytona Beach, Fla.

Georgia—Mr. J. H. Long, RFD No. 3, Monroe, Ga., brought to the State Mining Department (State Capitol, Atlanta, Ga.) recently several unusually large crystals of black tourmaline. These crystals came from Walton County, about one mile southwest of Between, from the farm of Mr. George Felker.—Georgia Mineral Society *News Letter*, March-April, 1950, p. 49.

Idaho—A letter dated May 22, 1950, from G. Elmo Shoup, P. O. Box 756, Salmon, Idaho, gives this interesting information: "The Calera Mining Company (How Sound Mining Company) of Forney, Idaho, is operating a cobalt mine in the Blackbird district of Lemhi Co., Idaho. This mine is reported to be the largest cobalt mine in the U. S. Reliable reports say that plans are being made to construct a large cobalt refinery on land near the American Smelting & Refinery Co's Garfield refinery in the Salt Lake region to handle the concentrates of the mill being installed at the above cobalt mine."

(Ed. Note:—Cobaltite, as reddish gray grains, crystals, and masses, has been known for many years as occurring in the Blackbird district and it may be the chief cobalt ore mined by the Calera Company).

Illinois—A nice specimen of galena, associated with calcite, marcasite, and sphalerite, all crystallized, and coming from the Blackjack mine at Galena, Jo Daviess Co., Ill., was recently donated to R & M by Donald Stanley, 1135 N. Latrobe Ave., Chicago 51, Ill.

Indiana—Interesting specimens of grayish, compact chert nodules, with calcite centers, occur in a small cave located about 4 miles east of Wyandotte, Crawford Co., Ind.

Iowa—Nice fossils (dark-gray corals, loose, and imbedded in limestone, also dark-gray brachiopods) occur at Rockford, Floyd Co., Iowa.

Kansas—Claude H. Smith, RD No. 1, Waterloo, N. Y. donated to R & M an interesting meteorite from Kansas. The specimen is a 1 x 1¼ inch dark brown pallasite. Exteriorly the specimen is so oxidized as to resemble an ordinary pebble of brown limonite. A pallasite is a stony-iron (or siderolite) meteorite in which the stony matter consists only of the mineral olivine. The specimen donated is from the Haviland Meteor Crater, Brenham, Kiowa Co., Kans.

Mr. Smith specializes in meteorites.

Kentucky—A nice 3-inch quartz geode from Knob Creek, Meade Co., Ky., was recently received from Anthony Thurston, Box 215, Worcester, Mass. The geode is lined with milky quartz crystals among which are sprinkled some brownish dolomite crystals.

The geode was collected by Mr. Thurston who writes that the locality is of special interest as it is within a few hundred feet of the spot where one of Abraham Lincoln's boyhood cabin homes was located. He lived there a short time before his parents moved to Illinois.

Louisiana—Donal Hurley, 16 Lewis St., Little Falls, N. Y., whose specialty is quartz crystals (he has them from every state and many foreign countries) contributes the following item:

"Louisiana was another hard nut to crack. Have authorative statement of no quartz crystals in the State. I finally obtained lignite with drusy quartz from the Sabine River—Louisiana side in S/W corner Section 14T on R15W. The sender was R. Dana Russell, School of Geology, Louisiana State University, University, La."

Maine—An interesting specimen consisting of pyrrhotite associated with phlogopite in calcite, from Pleasant Mountain, West Rockport, Knox Co., Me., was donated to R & M by Mrs. Ruth Wentworth, 135 Maine Ave., Portland 5, Me.

Maryland—If a collector wants to obtain for his collection a showy specimen from Maryland, he should strive for one of those iridescent siderites from Frostburg, Alleghany Co., Md. These specimens consist of siderite in minute crystals (showing iridescence) on impure brownish siderite.

Massachusetts—Wollastonite, in gray compact fibrous masses, occurs at the well-known Devil's Den locality in Newburyport, Essex Co., Mass.

The following item was sent in by Edward C. Foster, 15 North St., Williamsburg, Mass.

"In the course of casual conversation with my brother-in-law, Harold Dodge, a Pittsfield, Mass., contractor, he mentioned that he was going to open up the Betts manganese mine at Plainfield, Mass., during the last week of June. He will be doing the work for a Tennessee firm associated with Eastman Kodak, I believe, and is to get out a carload of ore. If this proves as good as samples previously taken, the firm plans to bring in heavy equipment and work the deposit for all it is worth."

The Betts manganese mine is noted for its deep pink rhodonite, the ore of the deposit. We hope Mr. Foster will keep us informed as to the progress made at the mine and minerals uncovered.

Michigan—Claude H. Smith, RD No. 1, Waterloo, N. Y., while on a trip to northern Michigan collected a number of quartz pebbles at Agate Harbor, Keweenaw Co., Mich. Some of the pebbles collected were grayish, banded agate and deep green plasma.

Werner J. Vietzke, RFD 1, Box 10, Rapid River, Mich., has prepared an interesting article on uranium occurrences in Michigan. This article, "Uranium in Upper Michigan", appears in the June, 1950, THE MINERALOGIST (Dr. H. C. Dake, Editor, 329 S.E. 32nd Ave., Portland 15, Ore.)

Minnesota—John O. Griesbach, 1009 E. 3rd St., Duluth 5, Minn., who has submitted a number of items for this department, is with us again. Part of a letter from him, dated April 12, 1950, reads as follows:

"Last week a buddy and I made plans to work the shoreline area in the vicinity of 30th Avenue East, here in the city. There is an outcropping of a light brown moderately coarse rhyolite (Keweenawan) there which we thought might be interesting to go over for minerals, according to a hasty inspection and reports from the Minnesota Geological Survey.

"Our plans were made for the 7th, Good Friday, as we would both be free. Jack (my buddy), Dr. Heller of the UMD (University of Minnesota, Duluth Branch) and I had been there for a few minutes on the previous Wednesday in company with another collector (newly recruited to the ranks following last quarter's course in General Geology at UMD) who lives nearby. This fellow had found some nice fluorite and he let us in on it as there was enough for all.

"Friday rolled around and it looked as if we would have to postpone the trip for blizzard conditions prevailed and I didn't think Jack would show up. But Jack did show up and we left for the beach, hoping the wind would die down for then the cold wouldn't be so noticeable After a bus ride to the end of the line, we hiked across the open field for about two blocks, then dropped down into a

shallow gully which we followed to the shore. The wind was blowing directly off the lake (Superior) and driving fine surface snow and neve-like pellets before it, gathered from the still frozen surface. I judged that the wind was moving with a force of about 20 to 30 miles per hour, and the temperature was in the 20's so we didn't stay long at the fluorite deposit which was on an unprotected spur. A few nicely crystallized specimens of fluorite and a few of calcite and Jack was ready to give up, but I said, "Why not try our luck around the spur along the northern side of the cove?" We did that and further explored the rhyolite as far to the southwest as 26th Avenue East. At one place we found a long open vein partially filled with calcite which extended up the nearly vertical rock face about 25 feet. A little exploring here yielded two fine groups of flattened rhombs, and two small groups of *unit* crystals. I used to get somewhat excited when I first noted these in small quantities up here but am now taking only the cream of them. They appear to be quite common in most all the Keweenawan formations hereabouts. I found them in at least 10 different locations along the shoreline.

"Here is the nice find, though—in one of the many vein deposits of calcite, we found pale yellow to pale green and clear fluorite crystals liberally scattered over the surfaces and embedded in the flattened hexagonal crystals of calcite. These fluorite crystals are *dodecahedral* in habit, the first of this form that I have ever found. They are mostly in the neighborhood of from 1/16 to ⅛ inch in diameter, although a few are smaller and some very few larger, on calcite crystals which are mostly in the neighborhood of from ½ to 1 inch diameter. In addition to the fluorite on these calcite crystals, there are also localized showings of micro-botryoids of hematite, some smooth surfaced and some quite velvety-brown. In a few calcite crystals these were noted also as inclusions in the crystals. These specimens for the most part would make up better as micro-mounts than cabinet specimens, but judicious use of 3 - 5x lenses would show them off nicely as cabinet specimens. *All* the calcites react to the Mineralight, pale to bright red, and the fluorite dodecahedrons show up fine with green fluorescence. The fluorite from the larger occurrence, in crystals from ¼ to 1 inch on the face, show light green, with the parts near the matrix being yellow-orange in reaction. The latter fluorite is in nice crystals, zoned from clear on the surface to purple, to green, to yellow toward the matrix or interior of the individual crystals. The outer-most part of the clear section of most of the crystals has some finely deposited hematite as inclusion material giving a false red color to them at first glance.

"Mr. Thomas, the discoverer of this last described fluorite, told us that he had one fine specimen and that was all he wanted, so the rest of us, Jack Gelineau, Dr. Heller, and I, each got out one fine specimen for our collection, and also removed most of the surface showing material for the Geology Department at UMD, for both specimen and trade material. There is more fluorite left in the deposit but quite a lot of work will have to be done for the vein has been worked in for about 2 feet. After the ice has gone from the lake, there will be no chance to do any more work there, as the water below the formation will be in the neighborhood of 10 to 15 feet deep."

Mississippi—Donal Hurley, 16 Lewis St., Little Falls, N. Y., who specializes in quartz crystals, sent in the following item:

"Yes, I do have quartz crystals from Mississippi. It took several years of corresponding and I have in my notes very positive statements of no quartz crystals native to the State. But after a long last, Dr. William C. Morse, Director, Mississippi Geological Survey, University, Miss., sent me a nice piece of petrified wood with excellent quartz crystals somewhat beyond the drusy stage. The exact location is not given.

"Mr. Waldo E. Ford, Rt. 2, Box 113, Wesson, Miss., sent me a geode with

quartz crystals—from Lawrence Co., Miss."

Missouri—Carnotite and possibly other radioactive minerals have been found recently in limestone in Ste. Genevieve Co., Missouri. This is the first reported occurrence of carnotite, not only in Missouri but in the Mississippi Valley region. It is of interest scientifically because it is one of the few known occurrences of this mineral in limestone as contrasted with the more usual occurrence in sandstone typical of the Colorado Plateau region.

The Ste. Genevieve occurrence was discovered in July, 1949, in a quarry in the Spergen limestone about 5½ miles north of Ste. Genevieve, Mo. Mr. Charles Bussen, the operator of the quarry, observed a thin film of a yellow substance along a joint in a block of limestone dislodged by blasting. This substance was identified as carnotite by the Missouri Geological Survey and Water Resources. Investigations in the quarry by means of a Geiger-Muller Counter revealed a thin bed of black shale which is highly radioactive, separating two limestone beds. The occurrence has been described by Garret A. Muilenburg and Walter D. Keller, in an article titled "Carnotite and Radioactive Shale in Missouri," which appeared in the March-April, 1950, AMERICAN MINERALOGIST, pp. 323-324 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.)

Montana—Near Blackfoot City, Deer Lodge Co., Mont., nice rock crystals occur. They may be had in loose crystals, in parallel growths, and crystallized.

Nebraska—Pink calcite occurs in limy shales in a prominent outcrop located about a mile east of Bennett, Lancaster Co., Nebr., along the south bank of the Little Nemaha River. The locality is also an excellent collecting ground for invertebrate fossils of Permian age.

Nevada—Nice specimens of crystallized deep red realgar, associated with orpiment and graphite, are found in the Getchell gold mine located 30 miles north of Winnemucca, Humboldt Co., Nev.

New Hampshire—The following item has been submitted by Miss Helen L. McLeod, 4826 Butterworth Pl., N. W. Washington 16, D. C.

"Collectors going north thru Franconia Notch, in New Hampshire, toward Mt. Washington, etc., should turn right off US 3, between Thornton and West Thornton and should search the road cut for the calico granite and syenite glacial pebbles which weather out of the bank in every size and kind. Examine also the pebbles in the Robbins Farm branch.

"Brown, maroon, black, green and white backgrounds display fantastic crystals in cross section, and the mineralogy nut will not sleep nights until he has identified them."

New Jersey—Nodular masses of blue platy crystals of vivianite occur in marl beds at New Egypt, Ocean Co., N. J.

New Mexico—Good specimens of gray colored petrified wood are found in Foster Canyon, Radium Springs, Dona Ana Co., N. Mex., judging by the three nice specimens donated recently to R & M by Alfred M. Perkins, Casa de las Cruces, Las Cruces, N. Mex.

New York—Two years ago when a small clay bank located on the corner of Erie Boulevard East and Midler Avenue, in Syracuse, N. Y., was being dug for fill, Mr. R. L. Sylvester, 154 Parkside Ave., Syracuse 7, N. Y., chanced to come along and seeing the operation stopped to investigate, as he had spotted a white vein. The vein proved to be solid platy white selenite, 5 inches thick, which ran into the bank. He was permitted to take all he wanted and he thus acquired some very fine specimens.

When Mr. and Mrs. Sylvester were visited a few weeks ago by the Editor of R & M, along with Mr. and Mrs. Howard V. Hamilton of Vandergrift, Penn., the selenite specimens were inspected with interest. Some of them were large, up to 15 x 15 inches in size, Of course, the visiting collectors were "loaded down" with fine selenite specimens and with

other minerals from Mr. Sylvester's many fine duplicates.

In the Jan.-Feb., 1950, issue of R & M appeared an item (p 43) sent in by William F. Whalen, 598 E. 138th St., New York 54, N. Y., relative to an extensive rock dump in New York City (near Bowery Bay, Astoria, Queens).

Mr. Whalen submits another item, dated May 14, 1950:

"Among the 38 minerals that have been found and identified to-date from the dumps near Bowery Bay, Astoria, Queens, are allanite, anthophyllite, kyanite, molybdenite, tourmaline (brown) wollastonite and the most surprising of all is argentine as coatings and flakes on rock that appears schistose.

"Argentine may be found on the hill in the northeast section of the main dump on rock more silvery in appearance than mica schist. This rock contains bornite, chalcopyrite, pyrite, and other minerals."

North Carolina—James A. Ray, of Asheville, N. C., sends in the following interesting bit of information:

"Another interesting trip was one made to the McKinney Spar Mine on February 12, 1950. We were fortunate in getting to the mine the day after blasting had been done. This blasting had unearthed a rather large amount of beautiful, pure, samarskite which is very lustrous and coal black. We found at that time about 50 lbs. of the material."

Samarskite is a radioactive mineral. It has a glassy lustre. The specific gravity is about twice that of quartz. Other radioactive minerals known to occur in Mitchell County are: uraninite, uranophane, clarkeite, gummite, autunite, and torbernite—Carolina Mineral Notes, June 1, 1950 (Published occasionally by C. Henry King, Box 109, Franklinville, N. C.)

Editor's Note: The above McKinney feldspar mine is near Little Switzerland, Mitchell Co., N. C.

North Dakota—Nice specimens of brownish, earthy limonite may be collected in the Badlands of Billings Co., N. D

Ohio—Pat Arnold, 1309 Wilbur Ave., Akron 6, Ohio, and Ray E. Swan, 1232 Lakeside, Akron, both employed by the Firestone Company in their city, have teamed up for the purpose of investigating the mineral deposits of their State. Mr. Swan has purchased two instruments, a Geiger-Counter and a basic metal machine in order to carry on their work more successfully.

Their investigations have not been without profit. They have found within Akron's city limits a large deposit of kaolin, the pure white clay used for making chinaware. A sizeable deposit of manganese has been found in Canal Fulton, Stark County, and, although hardly enough to start a gold rush comparable to the forty-niner, believe it or not, there is some gold in Portage County, Ohio.

An interesting account of their activities appeared in a recent issue of the Firestone Company's publication for employees titled "Study of Rock Formation, Mineral Deposits Convinces Employees 'Buried Treasure' may be in your Back Yard."

Oklahoma—Ash Lovett, Box 96, Mangum, Okla., donated recently to R & M a beautiful specimen of dark gray, roughly crystallized, selenite from the Gypsum Caverns near his city. Selenite lines walls and ceilings of the caverns which are located 13 miles west of Mangum, Greer Co., Okla.

Oregon—Pebbles of reddish opalized wood which make beautiful cabochons, have been found on the beach at Newport, Lincoln Co., Ore.

Pennsylvania—L. J. Duersmith, 405 Poplar St., (formerly 933 Spruce St.,) Columbia, Pa., sends in the following item:

"In the Jan.-Feb., 1950, issue of R & M under 'Mineral Occurrences,' you published an item about my finding the nice specimen of deweylite at the Wood's chrome mine (near Texas, Lancaster Co., Pa.). Would you like to know the results of that item? Here they are: I have had so many requests for the exact location and information about the mine that I

decided a field trip was in order. I sent out notices to some collectors I knew and called the trip for April 23rd. On April 23rd, in spite of bad weather, a group of 24¼ people gathered at Franklin and Marshall College (Lancaster, Pa.) to take the trip. (The ¼ member was a 'rock-puppy,' the 22-months old daughter of Mr. and Mrs. Otto Bauhof, of Philadelphia, with her own hammer).

"The day ended in a swapping orgie that was a sight to behold. The most outstanding find of the day was a piece of brucite, 5 x 2½ x 2 inches, found by Dr. John W. Price. This shows that the old dumps are by no means exhausted. The trip was such a success that I am thinking of conducting more in the near future to other localities. Now—here is where I need some help. If I could obtain the names and addresses of more collectors in this area, especially around Baltimore and vicinity, we could really have a big crowd for a field trip. I hope R & M will help me to get these names and addresses.

"Another result of the item—the best swapping deal that I have ever had, from a man in Bayfield, Colo., Mr. Fred G. Knowlton. He sent me material that is the answer to a Curator's dream, and I mean ANSWER!"

W. Harold Tomlinson, 260 N. Rolling Road, Springfield, Pa., sends in the following bit of interesting information:

"I notice a reference in last issue of R & M (p. 276) about coeruleolactite from E. Whiteland, Chester Co., Pa.

"My father and I visited the locality, the Gen. Trimble Mine, about fifty years ago, when it was in operation, and obtained good specimens of wavellite and coeruleolactite and also of the limonite iron ore and kaolin and possibly gibbsite, which I never checked.

"My recollection is pretty hazy but I recall large piles of kaolin and I think that this property, or one adjacent, was being worked for clay at that time. The coeruleolactite was found in the clay and not with the iron ore. We had no trouble in getting plenty of fair specimens.

"I have not visited the property since. The locality is now high grade farm land. Those who have been there tell me it is a dud from a collecting standpoint. It is saddening to think of the disappearance of these fine old mineral localities. Some civic minded mineralogist should erect a monument at this spot 'Hic jacet coeruleolactite.' "

Rhode Island—Molybdenite in small masses associated with magnetite and chalcopyrite have been found in Cumberland, Providence Co., R. I.

South Carolina—Deep red gemmy almandite garnet has been found near Blacksburg, Cherokee Co., S. C.

South Dakota—Loose black crystals of tantalite may be collected at the Helen beryl mine near Custer, Custer Co., S. D. A nice crystal was donated to R & M by W. L. Roberts, Rise Bldg., Rapid City, S. D.

Tennessee—A long slender specimen of stalagmite (calcite) from Andersonville, Anderson Co., Tenn., was seen recently in a collection. The specimen was about 20 inches long.

Texas—A specimen of tiny black tetrahedrite crystals associated with biotite, and malachite in a feldspar rock, was donated to R & M by Dr. T. R. Havins, Box 25, Brownwood, Texas. The locality for the specimen is the Heath gold mine, 6 miles northeast of Llano, Llano Co., Texas.

Utah—Some very nice specimens of variscite (sawed slabs) from near Lucin, Box Elder Co., Utah, were donated recently to R & M by Dr. A. L. Inglesby, Torrey, Utah.

Vermont—Ted Schoen, 117 Orchard St., Mt. Vernon, N. Y., sends in the following report on minerals collected on a recent trip to the noted talc mine at Chester, Windsor Co., Vt. He writes that the mine is on Route 11, about 1½ miles from Chester and next to Vail's Motor Court. His comments on minerals collected are as follows:

"Pyrite xls up to 1" cubes singly and interpenetrating groups which abound

here. Scratching and sifting thru the dirt produced some excellent singles, and discovery of some pyritohedrons.

"Magnetite xls abound in both talc and schist thruout this area with xls ranging up to half-inch in size and occurring as perfect octahedrons. This locality is ideal for the micro-mounter who likes to work with pin and needle to get some fine crystals out of this material.

"Actinolite in bright green and black columnar xls abound in gray and green talc, with many groups of curved xls radiating in fan-like arrangement. Many cross section cleavages show how the xls break across the xl, and not along the length of the xl. Xls range up to half-inch in diameter and six inches long. Many single xls run crazy-quilt directions in the harder talc, and make good additions to any collection.

"Asbestiform Actinolite where actinolite in myriads of dendritic-like threads spreads out to form asbestos-like silky white fibres in unusual patterns.

"Tourmaline xls while not plentiful were found by sifting methods. However the day's work yielded an excellent group of one inch black tourmaline xls in a chunk of hard lustrous coal-black schist."

Virginia—Staurolite as small dark brown crystals in mica schist occur in Fairy Stone Park, Patrick Co., Va. Many nice loose crystals, weathering out of the schist, are found in the Park.

Washington—Nice specimens of green, translucent common opal, which take a good polish, are found at Waterville, Douglas Co., Wash.

West Virginia—Fine blue celestite crystals used to be found at an old limestone quarry in Mineral County, 5 miles south of Cumberland, Md. If any reader is familiar with the occurrence will he please send some notes on it to R & M?

Wisconsin—Donald Schmerling 923A Dillingham Ave., Sheboygan, Wisc., sent R & M some beach sand from the Lake Michigan beach in his city. The material was a fine gray sand consisting of basanite (black), carnelian (red), jasper (red), magnetite (black), quartz (colorless, brownish and reddish), etc.

Wyoming—B. J. Keys, Box 572, Worland, Wyo., in a letter dated June 8, 1950, writes:

"About three weeks ago I discovered uranium in Big Horn County with the aid of my Geiger-Counter. We had two very good assays from Denver and the Salt Lake office of the Department of Interior Bureau of Mines, to whom we sent samples wrote, "Your sample No. 2 contains enough uranium to be salable under present purchase schedules for uranium ores." Three Geiger-Counters had shown strong action on the find before we sent in samples."

The deposit is in the bad lands east of Greybull, Wyo.

Incidentally Mr. Keys has been finding some very nice gizzard stones (gastroliths) in Big Horn Co., Wyo., at a locality east of Greybull. These gizzard stones come in various colors and sizes—some are red jaspers, others are brown, also gray, chalcedony, mottled chalcedony, smoky quartz, etc.—all very interesting.

Alaska—William Freiter, c/o Drake Puget Sound N. O. B., Adak, Alaska, has sent R & M a number of interesting pebbles from Adak, one of the small islands in the Aleutians. Among the most interesting pebbles are: epidote (dark green) and the following varieties of quartz—agate (pale, gray banded); basanite (black); chalcedony (white to gray in a heavy black rock); jasper (brown, red, and yellow); plasma (dark green); rock crystal (group of crude crystals in rock). Two nice rock specimens (pebbles), gray gneiss, also a black porphyry with quartz amygdules were also included in the shipment.

Algeria—Green drusy masses of scorodite come from Djebel Debar, Constantine Province, Algeria.

Australia—Tourmaline, as black needle-like crystals enclosed in massive smoky quartz, is found on Mt. Palmer, Hart's Range, Central Australia.

Austria—Austria is the only country in Europe that produces mica in commercial quantities. The name mica applies to several mica minerals derived from crystals in scaly, leaflike, or laminated masses. Of the mica minerals, muscovite, sometimes called ruby mica, and phlogopite, called amber mica, are the most important from the commercial viewpoint, Austrian mica is of the phlogopite type.

The St. Leonhard mine, in Carinthia (British Zone) is the only mica mine in Austria, but other mica-bearing deposits are known to exist in the Saualpe and Koraloe districts in this same area. The mine is about 6 miles northwest of St. Andrae, in the Lavanth Valley, 3,940 feet above sea level. (St. Andrae is about 33 miles northeast of Klagenfurt). (Bureau of Mines *Mineral Trade Notes,* May 1950, p. 38).

Bahama Islands—A. Wentworth Erickson, III, Matthewtown, Inagua, Bahamas, sent R & M a number of specimens, all from Inagua Island on which he resides. Among the specimens sent are gray oolitic limestone; buff colored fossiliferous limestone; loose lime concretions (nice grayish "golf balls" 2 inches in diameter) selenite (pale amber crystal plates about 2 inches long); clay marl; oolitic sand; and coral sand.

A letter from Mr. Erickson, dated April 3, 1950 reads:

"I am not at present able to get any rocks from any other island besides the one I live on, Inagua, but the rocks hardly vary at all and these are typical of the whole Bahamas group. All rocks I have ever tested from this vicinity have proved to contain from 98.15 to 99.5% calcium carbonate, and there is little evidence of there being anything else. In Andros, a centrally located island, and the largest of the group, a drill hole was sunk to see if there was any oil present. As far as we know, the hole went down to between 10,000 and 20,000 feet, and nothing was found but the same type of limestone.

"The islands were formed by successive coral reefs usually on the windward sides, and they seem to be building up much faster than they are being washed away on the leeward side. On this island there are several coral reefs, imbedded coral reefs at different points, and two "living reefs" which more than half surround the island. This island, Inagua, has an area of about 500 sq. miles, of which roughly 100 sq. miles are made up of salt marshes in which live flamingoes, roseate spoonbills, etc. The rest is flat (132 ft. highest elevation) and very rocky, the only topsoil being in potholes.

"Sample No. 1 (gray oolitic limestone) makes up the bulk of the islands. The only natural crystalline mineral I know of is gypsum (selenite). It is found in salt marshes and it occurs in plates from 2 to 8 inches in diameter which split easily.

"As for salt crystals, the island produces about 60,000 tons of them per year (solar wind evaporation from sea water) but I am not having much success in preserving them (in lucite). Do you know of any clear suitable preservative which can be poured around a crystal and be allowed to harden?

"There is also some clay marl from near a salt marsh. Aside from some poor grade grass peat, which is little more than humus, I have included samples of everything I can think of."

Canada—Ned Blandford, Box 114, McLean, Va., and Benjamin Chromy, 811 National Press Bldg., Washington 4, D. C., were recent visitors at the offices of R & M. They were returning home from a field trip to Canada where they collected a large number of nice minerals. Mr. Blandford donated to R & M a nice specimen of reddish perthite from Perth, North Burgess Township, Lanark County, Ontario, Canada (the type locality for the mineral); also a very fine specimen of deep pink rose quartz from the Hines beryl mine, Quadville, Renfrew County, Ontario.

Chile—Fine specimens of grayish-green resinous stalactitic masses of embolite are found in the silver mines of Chanarcillo, Atacama Province, Chile.

Cuba—Small greenish crystals of epidote with bright little striated cubes in quartz, have been found at Santiago de Cuba, Oriente Province, Cuba.

Egypt—At the mouth of the Nile River in Egypt, near Rosetta and Damietta, sands occur which contain ilmenite, monazite, and zircon. During the recent war, the deposit was worked for these minerals.

England—Fine specimens of chalcopyrite, crystallized on crystallized gray calcite, are found at Ecton, Staffordshire, England.

Finland—At Outokumpo, Finland, is the largest copper deposit in Europe. It was found by tracing glacial copper-bearing boulders for 50 kilometers (31 miles) which resulted in discovering the deposit beneath a swamp. The ore body is a mixture of chalcopyrite, pyrite, and pyrrhotite in breciatted quartzite.

France—Very fine dark brown crystals of cassiterite are found in the tin deposits at La Villeder, Department of Morbihan, France.

Germany—The largest copper mine in Germany is at Mansfeld, near Eisleben, Thuringia, which has been worked since 1150. The chief ore minerals are bornite and chalcocite with some chalcopyrite, galena, sphalerite, and tetrahedrite.

Gold Coast—Diamonds were discovered in the Gold Coast, West Africa, in 1919 in the Birrim River which locality has been worked ever since. Though the diamonds are of good quality they are very small, so the stones are used chiefly for industrial purposes.

Greece—Nice loose crystals of selenite are found at Laurium, Attica, Greece. The crystals often contain inclusions which are brownish, reddish, yellowish, etc.

Greenland—Fluorite, as pale purple masses, occur with cryolite at the famous cryolite mine at Ivigtut, Greenland.

India—Red gemmy crystals of almandite garnet are found at Jaipur, Rajputana, India

Ireland—Very fine amethyst have been found in County Cork, Ireland, at a quarry located on the right bank of the Lee, near the city of Cork.

Italy—The most important lead-zinc deposits of Italy are on the island of Sardinia where the Montevecchio and Ingurtoso mines supply most of the lead and zinc of Italy. The ores are galena (lead) and sphalerite (zinc).

Mexico—Deep blue crystals of boleite are found in the copper mines at Boleo, Lower California, Mexico. This is the type locality for boleite (a lead, silver, copper mineral) which was first found in the mines some years ago.

Norway—Chromite, the chief ore of chromium, was first mined in 1820, in Norway, but the country produces very little of it now. Chromite occurs in Norway on the Hestmando and Roro Islands in Nordland Province where it is usually associated with peridotite; it occurs also at Trondhjem, Trondhjem Province, where it occurs in serpentine derived from peridotite.

Scotland—Exceptionally large crystals of garnet have been found in coarsely banded garnet-biotite-sillimanite gneisses at Cairnie, Aberdeenshire, Scotland. Analysis shows the composition almandite 76.47, pyrope 18.58, spessartine 3.42, grossular 1.35, andradite 0.18. Well-marked partings cut the planes of schistosity and gneissic banding at low angles. (Notice No. 69 received June 15, 1950, of the Mineralogical Society, British Museum (Nat. Hist.), Cromwell Road, London, S. W. 7, England).

Sweden—Very fine crystals of cobaltite are found in the mines at Tunaberg, Sodermanland Province, Sweden, in limestone in gneiss associated with chalcopyrite and other minerals.

Switzerland—Red crystals of almandite garnet in mica schist are found on St. Gotthard, Kanton Tessin, Switzerland.

Turkey—Stibnite, associated with gudmundite, occurs with nickel minerals at Turhal, Turkey. This is Turkey's largest antimony deposit (stibnite is the chief ore of antimony).

VERMICULITE—A FRIEND IN THE HOUSE

The history of the advancements down through the years in the art of building a home is replete with novel (at the time) ideas which eventually became S.O.P. (Standard Operating Procedure).

There was the man, for example, who caused a furor in the building trade when he decided to add a few extra electrical outlets in his living room to reduce the possibility of overloading the circuits.

Today, there are more than enough electrical outlets in the average house to fill the needs of the most appliance-conscious housewife.

Then, too, there was the man who grew tired of a sitting bath, so he blazed the way for millions when he installed a shower.

Today, according to home-building surveys. a house without a shower is a strange phenomenon.

A material which was used as a "prop" by Indian mystics of the sixth and seventh centuries is responsible for the latest in the long line of building improvements. Vermiculite, a mineral of the mica family which expands to 15 times its volume when subjected to extreme heat, was used by the fakirs to impress the astounded sixth century audience with their magic-making powers in performing the unusual feat of "making stones grow."

It's vermiculite today which is performing magic of another sort for home builders throughout the country. No more need a housewife suffer the pangs of despair when a nail she has driven into a wall causes a web of cracks to appear. For vermiculite, used as a plaster aggregate, replacing sand, gravel, or other material commonly used for body. has developed a new type of plaster which can be punctured by nails or picture hooks without an accompaniment of unsightly cracks or holes.

Used as a concrete aggregate, replacing the ordinary type of body, vermiculite develops a lightweight concrete resulting in structural savings, both from a financial standpoint and in opening new vistas for architectural planning.

In addition to its other qualities, vermiculite plaster is highly fire-resistant, giving about four times more protection against heat and fire than ordinary plaster of identical thickness. It was determined, in a test by a noted laboratory, that a vermiculite plaster ceiling, reinforced with a vermiculite floor above, held back 1800 plus degrees of heat, thereby reducing the danger of a fire spreading throughout the house. If a fire breaks out in the kitchen, for example, vermiculite plaster walls will definitely confine the flames to that room helping to keep it under control until the fire department arrives.

Parents of young children find that this "miracle mineral" offers them a special benefit, for it has unusual soundproofing and sound absorbing qualities. The millions of tiny dead air cells in the material reduce the transmission of sound through partition walls and ceiling as they absorb the sound and cushion harsh noises and reverberations. The acoustical properties of this plaster improve hearing of speech and music, but muffle disturbing sounds.

How did vermiculte make its way from the mystics of the sixth centuries into the homes of the twentieth century?

History records the year, 1824, as the date when an American scientist, Thomas N. Webb, experimenting with the material which, a little more than 100 years later, was to revolutionize the building industry, described the expansion of the mineral under heat as "having the vermicular motion exact." From that study he named it vermiculite.

A half century later, gold prospectors were attracted to the ore because of its golden color when subjected to heat. However, upon closer scrutiny which revealed that it caved in when they attempted to dig holes in it, the disappointed prospectors named it "fool's gold."

The first commercial use of vermiculite occurred when a Libby, Montana, innkeeper, in 1918, discovered that it could be sold as decoration for Christmas cards and wallpaper. Even today, some depart-

ment stores use the sensational mineral as a decorative floor covering in window and showcase displays.

Only in recent years did industry realize the potential uses for a building material which was extremely lightweight, fireproof, rot-proof, termite-proof, vermin-proof, resilient, chemically inert, non-metallic, and a non-conductor of electricity.

According to the records of the Zonolite Company, largest producer of the mineral, the first house insulated with vermiculite was located in Spokane, Washington, built in 1927 by James Keeth. Since then, many of the famous homes of our time have been built with vermiculite playing a major role in their construction.

For the home owner, vermiculite has meant a house warm in winter, cooler in summer, with appreciable fuel savings as a result of improved insulation. It has meant a fuller protection of life and property because of its outstanding fireproofing qualities.

For the construction trade, vermiculite has meant a veritable revolution in the field. Private homes and large buildings all over the country are using vermiculite and lowering building costs.

With new production facilities, some new products already under way, and a continually improving merchandising program, the Zonolite Company goes out on a limb to prophesy that the use of vermiculite in the homes of America will become as common as those extra electrical outlets which caused such a furor—as prevalent as that shower which brought a different kind of bathing comfort to millions.

NEW YORK PROPERTY OWNERS TO LOSE RIGHTS TO MINERALS

Thousands of obsolete rights to minerals in and on privately owned lands in New York will be terminated by the State Oct. 12.

Secretary of State Thomas J. Curran said today that he would mail formal termination notices next week.

The individual rights to be affected are among those accrued since 1791 through filing of more than 12,000 notices of mines and minerals. Most claims have lain dormant, Curran explained. (Peekskill, N. Y., *Evening Star*, Thursday, June 8, 1950.)

Appreciates R & M Cooperation!

Editor R & M:

As Corresponding Secretary for the Los Angeles Lapidary Society, I would like to express my appreciation along with the Society for your cooperation in printing our Society News.

It is very heart warming to see these items in print. We appreciate the expense to you and your courtesy to us.

We will continue to send you our news, but it will be written by the new Corresponding Secretary, Victor Gunderson, for the next year.

Ted Schroeder, Cor. Sec.
Los Angeles Lapidary Society
Los Angeles, Calif.

June 16, 1950

Brooklyn-Battery Tunnel Opened To Traffic

The Brooklyn-Battery Tunnel, which connects Long and Manhattan Islands in New York City, was opened to traffic on Thurs, May 25, 1950. It is a vehicular tunnel, cost $80,000,000, and was started 10 years ago.

In the May-June, 1950, issue of ROCKS AND MINERALS, Thomas W. Fluhr described the geology of the tunnel (pp. 250-254) and Peter Zodac reported on some minerals found in the tunnel (pp. 266-267).

U. S. Geological Society Honors Van Amringe

Edwin Van Amringe, one of California's most popular geology instructors, was recently elected a Fellow of the Geological Society of America, top honorary society for U. S. geologists.

Mr. Van Amringe has taught geology for 25 years in the Pasadena City College (formerly Pasadena Junior College), Pasadena, Calif. He feels that the honor he received, first of its kind ever conferred upon a junior college faculty member, is the result of the "outstanding work my students have performed in geological centers throughout the world."

Mr. Van Amringe is an Honorary Life Member of the Mineralogical Society of Southern California; he is also a member of the Rocks and Minerals Association (since Nov. 11, 1929).

COLLECTORS' TALES

MISSED THE BOAT? — NAW! ! !

Have you ever searched for some hard to find item, then obtain it unexpectedly? Such an experience came my way recently. I had repeatedly tried to obtain a copy of "The Mineralogy of Pennsylvania" by Samuel G. Gordon. Since it has long been out of print, and the only source is used book dealers or estates of old collectors, it is indeed a prize for someone interested in Pennsylvania material. By chance a sample copy of the October, 1949, issue of "The Mineralogist" magazine was sent to me. Their book department listed a copy of Gordon's text for sale. Here was my chance, so, as soon as possible, I dispatched an air-mail letter containing my order and check. In a few days "The Mineralogist" wrote to me saying, we are sorry, but the book you wanted is already sold. Shucks, that blamed book got away again. Only a few days elapsed when a note from the Editor of "Rocks and Minerals" informed me that he had just acquired an extra copy of Gordon's "The Mineralogy of Pennsylvania" and asked if I still wanted a copy. I jumped at the chance and told the Editor I did want it, and also how I had missed the boat on such a deal a few days before. A return letter from him read, "So you tried to get a copy of Gordon's "The Mineralogy of Pennsylvania" from "The Mineralogist?" You had no chance because I beat you to it. At any rate the book is sent to you with my compliments." That blamed book has traveled more than I have—Philadelphia to Portland, Oregon, and back to me by way of Peekskill, New York. Unbelievable, but I have the evidence, autographed by the Editor.

Howard V. Hamilton
187-A Franklin Ave.
Vandergrift, Penn.

That's Tough!

In Salida, Colo., American Legionnaires, gleeful over the discovery of radioactive ore in the fireplace of their post, stopped crowing when they were reminded that they did not know from where the rocks had come from.—
—TIME, May 1, 1950

His Pet Hobby!

Editor R & M:

Enclose find check to renew my subscription for ROCKS AND MINERALS for another year of very good information on my pet hobby. And best of luck for the coming year!

Fred Grossman
June 5, 1950 Fairfield, Conn.

New Mexico Calling!

Editor R & M:

Why don't you visit our State sometime and if you need a guide I will be only too glad to serve in that capacity? Some mighty nice minerals may be found here at the old Kelley and Graphic Mines. Best wishes for ROCKS AND MINERALS!

C. P. Hollenbach
June 13, 1950 Magdalena, N. Mex.

Geological Guide Books and Road Logs In The U. S.

"Geological Guide Books and Road Logs in the United States," has just been issued by the American Geological Institute. Compiled by the Institute's Geological Information Committee, the report lists 210 guide books and pamphlets which have been prepared by various geological societies and other agencies in the U. S. This is the first compilation of this type which has been published.

The guide books vary from large printed volumes to mimeographed stapled pamphlets. Many contain information which has never been formally published concerning collecting localities or the geology of the areas covered. Portions of 34 states are included in regional or local guide books, in addition a number printed by the U. S. Geological Survey and in connection with the 16th International Geological Congress cover extensive areas along the railroad routes.

The information included about each guide book includes: title; general area or route covered; date of publication; description of text and illustrations; disbursing agency and whether now available; and price.

"Geological Guide Books and Road Logs in the U. S." may be secured from the American Geological Institute, 2101 Constitution Ave., N. W., Washington 25, D. C.; price $1.00 including postage.

MAKE YOURSELF A MORTAR

By S. L. CLARK

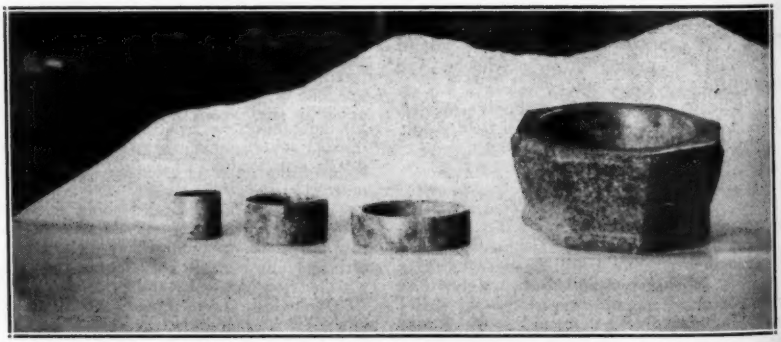
Lancaster, Mass.

Located in the village of Freeport, Maine, is a store on the east side of the main street in which may be found a large stock of Maine minerals and antiques. The shop is owned by a very genial and entertaining gentleman known by everybody as "Ike," the rest of the name being Skillin.

Any time you should choose to stop at Ike's store you will find him in a back room working with his lapidary equipment. Since Ike is a very ingenious person, most of his equipment is home made. You will get a real kick out of the washing machine he turned into a saw, and a whole battery of drum sanders which he has mounted on some machinery taken out of a cobbler's shop. One time I visited Ike and found him operating a very fine rapid cutting mud saw, and later he told me that he had turned it into the best lap that he had ever used. However, it is not Ike's equipment that I want to tell you about but something I found him making when I visited him recently.

Someone told Ike that it took a long, long time to make a mortar out of agate. Ike tells me that it is not true as he recently made one for Harvard with an inside diameter of four inches and one for General Electric with a five and a half inch diameter. When I last saw him he was just reproducing his work in Black Mountain lepidolite. He started with a piece three inches thick by six inches square. After sawing the exterior to an octagon shape, a comparatively easy task, he proceeded to work on the interior.

The first step was to make a jig to hold the work. The jig consisted of inch thick pieces of hard wood about eight inches square, one piece to rest under the work, the other to lay on top. Four bo'ts were used, one through each corner, so that the work could be held firmly between the blocks of wood. The upper block had a hole cut in it the exact size of the tubing that would be used to cut the largest dimension in the block of lepidolite. Three cuts were made using tubing of the following sizes: 1½ inches, 2½ inches, and 3½ inches. This tubing was mounted on a shank to fit the drill press chuck, and the conventional method of cutting with tubing and grit was used, and the cuts made to the proper depth, the deepest being the center 1½ inch cut. To keep the tube from "walking" as Ike calls it, while starting the cut, a half-inch-thick board must be placed under the top part of the jig and clamped down tight against the work. With a hole cut



Lepidolite mortar made by Ike Skillin

in this board the exact diameter of the tubing, you will have a guide to hold the tubing while beginning the cut. After all three cuts are made with the tubing, the center piece can be easily broken out by driving a properly shaped wedge into the cut.

From here on Ike's ingenuity takes over. A discarded valve from an auto motor should be mounted in the drill press chuck to undercut the other two rings that were cut by the brass tubing. Of course, carborundum grit is used for this operation. He took a ball off a fence post and bushed it down to fit the drill press to finish the interior.

It is obvious that the jig containing the work will have to be rotated in a circular motion to cause the edges of the valve to make contact with the work. This can be done by feel, but a precision job could be done if a circular piece of wood about one-half-inch thick is nailed to the bottom of the jig with due attention to the proper centering of the piece, and another piece of corresponding thickness with a round hole of larger but proper diameter be fastened to the table of the drill press with the hole directly centered under the valve that you have mounted in the chuck. With the afore described arrangement the valve edge will cut only so far from the center, and a perfect circle will be cut in the bottom of the mortar. After the material is cut from the interior of your mortar, you can still remove some of the excess by varying the height of the valve in the work and the size of the circle cut in the piece of wood placed under the jig as a circular guide.

The last part of the job is to smooth the interior and polish it. This is accomplished by making out of hard wood a round head mounted on a shaft so it can be fastened in the chuck and shaped to the contour that you want the inside of the mortar to be. This you will call the sanding head, and it should be about half the diameter of the inside of the mortar. Slots should be sawed in the head parallel with the shaft and strips of abradant cloth fastened in the slots. Starting with coarse abradant cloth and ending with the finest, the interior of your mortar can soon be shaped as you desire. The polishing can be accomplished with a felt head and the indicated polishing agent.

Ike says that he has never made anything that he has received so much satisfaction from. If you try it, write and tell him how you succeed, and if you can make any suggestions that will improve the technique he will be most thankful for the information.

Over 7,000 Have Seen Anderson Collection

Dr. and Mrs. R. E. Anderson, of Deming, N. Mex., who not only specialize in fluorescent minerals but who also have one of the largest collections of them in the country, were featured in the March, 1950, issue of NEW MEXICO. The story, titled "Rock-Hound Magic," written by Margaret Williams Osborn, and which took up more than 2 pages with 3 very good illustrations, is a portrayal of 15 years of rock collecting by the Andersons.

The Anderson fluorescent collection is stored in the basement of their home and so far over 7,000 people have gone down there to look it over. As most of the visitors never saw a fluorescent mineral before they went down into the enchanted basement, they just stared and stared in complete but delightful bewilderment at what was around them when the ultra-violet lights were turned on.

Collectors traveling through New Mexico are urged to head for Deming and to call on the Andersons so as to see and examine for themselves the very fine fluorescent collection. Most of the specimens on display were picked up in New Mexico.

NEW MEXICO is published monthly by the Bureau of Publications, State of New Mexico (Editorial and general offices: The Capitol, Santa Fe., New Mex.). Subscription is $2.00 a year; sample copy 25c.

Choice Mineral Specimens

Minerals Unlimited, 1724 University Ave., Berkeley 3, Calif., issued in June, 1950, their new mineral catalog titled "Choice Mineral Specimens." The catalog is 6½ x 8½ inches in size, contains 36 pages and cover, and lists a large selection of high quality specimens for the discriminating collector. The minerals are listed alphabetically beginning with Acmite (Arkansas) and ending with zunyite (Utah). A brief description, size, price, and locality for each specimen is a commendable feature of the catalog. Most of the specimens listed are "one of a kind," so collectors are urged to rush their request for a copy of the catalog and then to really RUSH their order before the minerals wanted are all GONE!

"THE LUCK OF THE ROCKHOUND"

By ANTHONY W. THURSTON
Box 215, Worcester, Mass.

As I was looking over some of my long cherished minerals and fossils a few days ago it occurred to me that I have been exceptionally fortunate in my collecting. Several specimens brought to mind the fact that they were discovered, not where one would expect them to be, but in places where no well trained sensible geologist or mineralogist would bother to look. Then, wondering whether or not a lot of other collectors had met with similar circumstances, I began to set down the notes which have resulted in these collecting tales.

I was only a small boy when I turned up my first arrowhead while walking across a field and from then on my good fortune continued. Now unless you live in New England you may not feel that an arrow is a particularly unusual find, and in most states you would be correct. In this instance however, the field was one which had been known as a camp ground for many years, and had been so thoroughly combed by veteran relic collectors that they avoided it as no longer being of any value.

It always seemed that I was the lucky one on a field trip, often I found arrows or other relics where my friends had just passed them by. Nor was this due to any skill, for I usually made my finds by poking into some hole or under another rock where there was little reason for looking, except out of curiosity. On one occasion I happened by luck upon an Indian camp site which had been well worked over by a collector friend of mine. Now, no learned scholar would bother with a place already explored and dug over, but I was no scholar. Yes, lady luck was with me for on top of the upturned heap of dirt lay a small tomahawk which somehow had been overlooked until a rain shower washed it off for me.

On another occasion a pierced sinker turned up on the first spade full of peat from a salt marsh along the Taunton River. There aren't supposed to be relics there in the peat, but one came up on my spade.

My first real find was when I was about fifteen years old and although it was not really my own discovery time had temporarily erased it from memory. It happed when an acquaintance of mine asked me one day if I would care to hike to a cave he knew of along Lees River. I agreed, and we set out over an abandoned railroad bridge leading to the Somerset shore. From the bridge he pointed out a black ledge about a mile away where the cave was supposed to be located. Well, here in southeastern Massachusetts a black ledge means slate, and slate means that it belongs to the Carboniferous period with the possibility of fossil plants. From that point on I began dreaming of all the ferns I would find. Disappointed? Not at all, for the ledge had a layer of ferns exposed right on its surface and I collected a large number of them. Later that same year the New England hurricane tore at the cliff and eroded the rock back to a point where it would take explosives to collect more specimens.

Quartz Crystals Near E. Berne, N. Y.

Shortly before the war I made occasional summer tours through the Helderberg Hills and Catskill Mts. of New York collecting fossils. It was on one of these trips that I stopped to hunt trilobites in a road cut of hard sandy limestone near E. Berne. I thought I saw something in a crevice about eight feet above and hooking my pick into it pulled myself up for a better look. A trilobite? Naturally it should have been but instead down the slope rolled a two inch double terminated quartz crystal. I was very much surprised at this, for to my knowledge these crystals are supposed to come from Little Falls and surrounding towns, but my surprise was much greater when I scrambled back to the crevice and dug out forty-three more crystals. These ranged all the way from half an inch up to the size of the first.

Such events seem to have occurred more often in my life than would be accounted for by mere chance for I have never been able to do too much collecting nor visit large numbers of locations. More than once, as with the quartz crystals, the accidental find was much better than the specimens I expected to find in such a place.

North Africa Find

During my service in North Africa my battallion was given leave one day, for a swim in the Mediterranean, and I expected to find a few sea shells for a friend of mine. In place of shells I found that we had accidentally selected a stretch of beach close to a hot sulfur spring which furnished me with some interesting deposits of sulfur, calcite, and gypsum. Not one unusual shell could be found on that beach.

Fossil Finds in Italy

In Italy one June afternoon we camped beside a ravine which from appearance was much the same as dozens of others we had seen for the past two weeks. The farther side, however, had a raw sandy spot where stream erosion had caused a slight land slip. Something urged me to examine this exposure, although I had looked over dozens of others without finding a thing. Several yards away I could see the fossils. Hundreds of the delicate shells projected from the soft sandstone like raisins in a pudding. It was a col'ector's paradise. In two days I had about fifty species, most of them pelecypods and gastropods with two species of scaphopods. These ranged from tiny Venus clams half an inch across to a big Triton eight inches long.

The site seemed to have been a lagoon ideally suited for marine life. Into this a stream emptied large quantities of fine, clean sand during certain periods of the year stifling the life. Many of the bivalves were still in the position they had occupied in life, the valves in tact and in place. Some even had traces of the muscle joining them and I could hardly believe they had not been taken from the sea a few days previous.

Further examination of the other exposure in the neighborhood revealed very few or no fossils at all, and long tramps over the countryside in search of other deposits brought no results. Some kind angel who watches over collectors must have led me to these unusual discoveries.

Later in another part of the country, after a fruitless search in Eocene strata for fossils, I was returning to my station over a low clay hill when a bone protruding from a gully attracted my attention. At first I thought that some farm animal had died and the bone partly covered by rain wash. On a second look though I could see that the clay layers into which the bone extended were undisturbed. Digging carefully I uncovered a leg bone from what proved later to be a prehistoric European bison. Further search for the next week brought to light nothing new. Will someone tell me how my feet found the trail leading to the only fossil exposed on that knoll?

Geodes in Kentucky

Back from service I went to work in Kentucky only to find myself with a survey crew in the midst of a region plentifully supplied with quartz-lined geodes. Soon I discovered that in spare time between transit shots I could crack open the geodes against other rocks and occasionally found one worth taking home. About one in five had a decent size hole in the center so that I soon had a fine collection. Then one afternoon along a road where I had not found more than a couple of poor ones I suddenly spied a geode in the ditch, about five inches in diameter. It was a tough one but I finally split it and discovered that the quartz was tinted a beautiful pale amethyst. Were there others? I hardly think so, for that same Lady Luck still guided my feet and for the rest of my stay in that section of the country I found nothing but the plain quartz variety.

Even when others collected for me the luck fastened itself upon them.

Gypsum Xls on Iwo Jima

My brother-in-law was with the Sea Bees on Iwo Jima and coming upon a fumarole saw some gypsum crystals in a cavity near the vent. The rocks were hot but he broke off two of them and

(*Continued on Page* 396)

THE MICRO-MOUNTER

Conducted by LEO N. YEDLIN, 633 W. Penn St., Long Beach, N. Y.

Our "Caper to Connecticut" has not as yet materialized. We're holed up, for a year at least, at the above address, in a spacious apartment. However, it has no attic and no basement, and our home operations are somewhat curtailed as a result. In other words we'll have to high grade our specimens in the field. No more lugging home half a quarry and piling the stuff in the cellar for future work. Maybe it's a good thing at that.

We'd like to tell you of a recent acquisition of superb micro material. This was from Hugh A. Ford in New York, and is outstanding. Mr. Ford acquired a fine collection of xld California gold in all sizes, and among the specimens were perhaps a hundred finely xld micro gems, showing many forms and habits. The stuff was incredibly cheap, and as we examined a box full of the material this is what we found and selected:

Gold in cubes, in octahedrons (some hollowed) in dodecahedrons, trapezohedrons and in combinations of several forms. Some were brassy and brilliant. Some were grey with admixture of silver (electrum). A few were arborescent with rounded terminations, each rounded end enclosing a bit of argentite—much as the brass claws of a piano stool surround rounded glass balls. Many were of the wire type, with brilliant square filaments interlocking in graceful mesh. And a few wires had octahedrons and cubes implanted along the edges.

All these were small, but very fine. And the cost—an average of a dollar each! We took two dozen.

Word from an expedition to Ward's in Rochester, N. Y. Among the things Perloff and Desautels obtained were vauxite, scheelite from Saxony, phillipsite from Rome (a new find), large greenockite xls from Bolivia, skutterudite cubes from Ontario and a host of others. A more detailed report will follow.

Among the aids to m/m mineralogy recently to hit the market are a series of pocket microscopes. We described a simple and efficient instrument stocked by Harry Ross of New York (20 X and $2.50 in price). Another, sold by Hamonneau (East Coast Mineral Corp.) of New York City, and called a "Penscope" is priced at $15—and seems pretty good. It's a bit larger than the conventional fountain pen and by means of a telescopic arrangement gives magnifications from 10X to 40 X. Comes in a neat case and needs no special lights or stands.

Another 'scope, announced in last month's issue of ROCKS AND MINERALS is sold by the Clarkston Corp., of Los Angeles, Calif (20 X to 60 X) and is priced at $12.50. From its description it seems a handy tool. However, we haven't seen the instrument and cannot discuss its merits at this time.

We're looking for a m/m of quartz showing a "C" face, or basal termination. We've seen but 3 specimens of this rarity. Frank Lewis of Hempstead, N. Y., has a hand sized xl. Mrs. Hersey Thomas of Philadelphia and Lou Perloff (naturally) have the other two, both m/m mounts. The "C" face is minute, triangular (from intersecting the rhombic pyramidal termination) and rather dull in contrast to the vitreous lustre of the rest of the xl. (We have some calcite xls, scalenohedrons, that show the base. These too are dull in appearance.) Anyone who has a duplicate can get a nice mounted gold in exchange.

John Trainer, of New York City, for whom no minerals exist save garnets and Tilly Foster, N. Y., specimens, recently asked us to examine some slides of small and included garnets that he had obtained in the purchase of the Warford collection. Normally we think of m/m specimens mounted in boxes, and observed by reflected light. Trainer's were tiny loose xls, and flattened xls in mica, mounted conventionally, in glass slides with a hollowed center and a thin cover glass over the hollowed part to keep the min-

eral in place. The garnets were excellent. Those in muscovite were accompanied by hematite inclusions so thin as to be transparent and blood-red. Some were loose xls showing good forms and exceptional brilliance. Try some. We recommend, besides garnet, ruby sphalerite, quartz, zircon, spinel, and above all m/m xls of the borates and their associates.

We've just received some of the latter from Dr. John Peoples of Petaluma, California. Tiny loose doubly terminated xls of the following: pirssonite, northrupite, gay-lussite, tychite, searlesite, meyerhofferite and a fine mass of celestite in colemanite. We have our summer's work cut out.

FRENCH EQUATORIAL AFRICA DIAMOND FIELDS GET U. S. AID

Washington, May 31, 1950—Industrial diamonds for the United States Government stockpile will be mined in a remote area of Africa as the result of Marshall Plan aid.

The Economic Cooperation Administration announced today an agreement with the French Government under which ECA has concluded commercial contracts designed to aid in the development of the most advanced mechanized diamond mines in French Equatorial Africa.

The arrangements call for advances of $500,000 and the equivalent of $1,100,885 in francs to assist in the development program of Compagnie Miniere de l'Oubangui Oriental (CMOO), which has been a producer of industrial diamonds since before the war. The equivalent of $653,571 in francs will be used for carrying on the exploration program of Societe des Recherches et de l'Exploitation Diamantifere (SOREDIA), a subsdiary of CMOO.

The ECA advances will be repayable, with interest, in industrial diamonds for the U. S. stockpile. Repayment by SOREDIA will, however, be dependent on the successful results of its exploration program.

The forests and savannas of the Gabon, the Middle Congo, and Oubangui-Chari territories in which the two companies operate are in many cases little known to the American public. This is the country of Trader Horn. It is also the mission area of world-famed Dr. Albert Schweitzer, who lives on an island in the Ogowe River, a mile from Lambarene. not far from the SOREDIA mining properties. Tradition has it that his island was once the locale of a Trader Horn trading post. Dr. Schweitzer has frequently given medical care to the natives employed by SOREDIA, and the company has also rendered assistance to Dr. Schweitzer's hospital.

The SOREDIA concession covers 28,000 square kilometers north of Dolisie in the Gabon and the Middle Congo. The CMOO concession includes 22,500 square kilometers around Berberati in Western Oubangui. About 9,000 natives are presently employed by the two companies together with a European force of about 75 prospectors, engineers and technical workers.

The production of industrial diamonds in these concessions will be accomplished by placer operations, the diamonds being found in alluvial diamond-bearing gravel close to the surface of the ground. American tractors, bulldozers, and other heavy apparatus to be purchased with the ECA dollar advances, will be used to clear forest areas before actual diamond production begins. The gravel, removed in large quantities, will be fed through washing mills for the extraction of diamonds.

Diamonds were first discovered in French Equatorial Africa by a French prospector named Brustier in 1914 while he was exploring the Ippy Region in Eastern Oubangui. The first organized prospecting of the territory was undertaken by a French mission in the twenties. Since then production has been rising year by year.

COLLECTORS' COLUMN

Conducted by A. CAL LECTOR

This column, which began with the Sept.-Oct., 1948, issue, is of special interest to beginners in mineralogy as we comment briefly on one or more of the common minerals. In the last issue we talked on celestite. This time we will take up chalcopyrite, another common mineral.

Chalcopyrite

Chalcopyrite, a sulphide of copper and iron, is the chief ore of copper. It is a very common mineral throughout the world and wherever a copper mine is known to exist, chalcopyrite is most assuredly one of the ores of the deposit.

Chalcopyrite has a brass-yellow color. It is heavy and metallic, At times it is tarnished or iridescent and when so it often becomes a most attractive specimen for a collection.

The mineral occurs massive, in crystals, and sometimes botryoidal (resembling a bunch of grapes) or reniform (kidney-shaped). Although a copper mineral, chalcopyrite is common in many gold, iron, lead, tin, zinc, and other deposits.

Beautiful crystals of chalcopyrite used to be found at the now long abandoned lead-zinc mine at Ellenville, N. Y., and iron mine at French Creek, Penn. Perhaps the most noted present U. S. locality for beautiful crystals is the Tri-State zinc mine area which includes Galena, Kans., Joplin, Mo., and Picher, Okla., just to mention one of the most important localities in each of the three states. Tri-State, meaning three states (so called because the zinc area embraces the corners of three adjoining states—Kansas, Missouri, and Oklahoma) is the most important zinc area in the United States. In the Tri-State area, chalcopyrite, in beautiful crystals, is found with galena and sphalerite, both crystallized.

Some noteworthy foreign localities for good chalcopyrite crystals are the tin mines of Cornwall, England, especially at St Agnes and Liskeard; at Siegen in Westphalia, Germany; copper mines at Ani and Arakawa, Ugo Province, Japan, etc.

A curious massive variety of chalcopyrite is that found in some Cornish mines and called "blistered copper ore" by the miners; this type is botryoidal or reniform with a smooth, brassy surface. Cook's Kitchen and Wheal Basset, in Cornwall, England, have produced very fine blistered copper.

Carn Brae, Cornwall, England, is a locality for fine iridescent crystals of chalcopyrite, coating fluorite cubes.

Very fine masses of chalcopyrite is found in the copper mines of western United States. Some unusually fine massive tarnished specimens of chalcopyrite associated with attractive radiated molybdenite are found in the Squaw Peak Copper mine, near Camp Verde, Ariz. (See July-Aug., 1949, R & M, pp. 358 and 376).

There should be a number of chalcopyrite specimens in every collection as the mineral is neither high priced nor difficult to obtain. Every dealer carries chalcopyrite in stock. If you do not believe us, contact your favorite dealer, ordering a few specimens from various localities— his choice. We feel sure you will be pleased when you receive the minerals!

The Luck of the Rockhound

(*Continued from Page* 393)

sent them home, whereupon I found that the larger contained a moveable bubble which the finder was unaware of.

Some are said to have kissed the Blarney Stone, others are born with a four leaf clover in their hand or a silver spoon in their mouth, but I feel sure that we rockhounds must have been born with some very lucky stone close by. Don't you agree?

BIBLIOGRAPHICAL NOTES

Economic Mineral Deposits: By Alan M. Bateman.

This is the 2nd edition of Dr. Bateman's very fine book on mineral deposits (released May 18, 1950). It gives a comprehensive, authoritative account of the metallic and nonmetallic minerals, their origin, form, occurrences and uses.

The book is divided into 3 parts. Part I (pages 1-415) is a thorough presentation of principles and processes of mineral deposits (11 chapters make up Part I). Part II (pages 419-628) is devoted to metallic mineral deposits and is divided into 4 chapters. Part III (pages 631-875) takes up the nonmetallic mineral deposits which are covered in its 10 chapters. An Index (pages 877-916) is the final installment.

Dr. Bateman's geological investigations in many countries of the world gives the reader authoritative information on a large number of foreign mineral deposits. A special section on gemstones is a feature of the new edition.

Dr. Bateman is Silliman Professor of Economic Geology at Yale University. He is Editor of the JOURNAL OF ECONOMIC GEOLOGY and was formerly Editor of the AMERICAN JOURNAL OF SCIENCE.

Economic Mineral Deposits is well illustrated, not too technical so that it is easily understandable by the amateur geologist and mineralogist, and thus we heartily recommend it to our readers. It is 6 x 9½ inches in size, contains 916 pages, and sells at $7.50 a copy.

Published by John Wiley & Sons, Inc., 440 4th Avenue, New York 16, N. Y.

The Art of the Lapidary: By Francis J. Sperisen.

On March 10, 1950, a new book made its appearance—*The Art of the Lapidary*. The author, Francis J. Sperisen, is one of the country's most noted lapidaries. In the Preface appears this paragraph:

"The present book, which sets forth the knowledge gained by the author during more than 35 years of experiences as an amateur and professional lapidary, has been written in the belief that the entire industry will profit from its publication."

Prior to 1931 there was nothing available for the amateur on how to cut and polish gems. In 1931, ROCKS AND MINERALS printed "The Working of Semi-Precious Stones," by J. H. Howard. This is believed to be the first complete information on the subject ever printed in the English language. Since 1931 a number of books have made their appearance—all so good and helpful that they have had a wide circulation with the result that amateur cutters are now counted by the thousands.

The Art of the Lapidary is the latest book on cutting and polishing. It has been carefully prepared, nicely printed, and profusely illustrated with very good drawings and photos. It, too, is destined for a wide circulation and readers are urged to order their copies before the edition is exhausted.

The book contains 382 pages, 406 illustrations (with a very nice frontispiece in color) and is 6¼ x 9½ inches in size. Price $6.50 a copy.

Published by the Bruce Publishing Co., Milwaukee 1, Wisc., (Eastern office, Bruce Publishing Co., 330 W. 42nd St., New York 18, N. Y.)

Book Notes from John Wiley & Sons

John Wiley & Sons announced the publication in March of a new reference volume for geologists and engineers, "Applied Sedimentation," edited by Parker D. Trask.

Sponsored by a special committee of the National Research Council, this symposium consists of thirty-five original articles devoted to the practical applications of sedimentation. Emphasizing the mutual interest of the geologist and the engineer, the book covers the basic principles of sedimentation, engineering problems involving the strength of sediments, applications of processes of sedimentation, applications involving the nature of the constituents, economic minerals deposits, petroleum geology problems, and military applications.

The editor, Parker Trask, is supervising geologist with the Division of San Francisco Bay Toll Crossings of the California Department of Public Works.

In March Wiley also published "Introduction to Theoretical Igneous Petrology", by Ernest E. Wahlstrom, professor of geology at the University of Colorado.

An analysis of the basic facts and concepts of igneous petrology from the physico-chemical viewpoint, this book presents a synthesis of existing theories on the origin of igneous rocks. The author has included a survey of the theory and practice of geophysics, as well as a series of new phase-rule diagrams.

The price of "Applied Sedimentation" is $5.00, while "Introduction to Theoretical Igneous Petrology" is available at $6.00.

JOHN WILEY & SONS, INC.
440 Fourth Avenue
New York 16, N. P.

Enjoys Locality Articles!

Editor R & M:

May I say how good ROCKS AND MINERALS is? It is the best of its kind in publication. I particularly enjoy the locality articles.

Peter Young
May 14, 1950 Kentfield, Calif.

CLUB AND SOCIETY NOTES

Attention Secretaries—If you want your reports to appear in the Sept.-Oct. issue, they must reach us by August 20th—the Editor.

Lapidary and Gem Society of New York

The Lapidary and Gem Society of New York was organized in New York City last October and is now established as an operating unit. Thanks to Mr. Hamonneau, the Society now has its permanent headquarters in the Hotel Endicott, 440 Columbus Ave., New York, N. Y., where it has set up its own equipment for the use of members.

On May 10, Mr. J. T. Fox, founder and owner of the Fox Museum, Seaford, N. Y. visited the meeting and displayed to an enthusiastic audience his colored movies of the Morgan Gem Collection of the American Museum of Natural History.

On May 24, Mr. Crowninshield, the eastern representative of the Gemological Institute of America, visited the meeting and lectured on his remarkable collection of colored slides illustrating "Inclusions in Gem Stones." It is planned that in the Fall other guests, also foremost men in their fields, will visit and lecture at the meetings.

The Society now consists of about 45 active members and a few associate members. It meets on the second and fourth Mondays of the month. The officers are: President, V. Lachowich; Vice-President, A. Goldstein; Secretary, T. Hollingsworth; Treasurer, S. Perricone.

S. Perricone, Regent Lapidary Co.
511 E. 12th St.
New York 9, N. Y.

Geology Club At Duluth Takes Shape

A club for geology students, rock and mineral collectors, amateur lapidists, and anyone with a definite interest in one or more of the earth sciences has been organized in Duluth, Minn., by UMD (University of Minnesota, Duluth Branch) geology students and staff members.

The new club will attempt to establish a close bond of fellowship among undergraduates and graduate students of geology and to promote interest in the study of the earth sciences in the Lakehead region. Activities will include discussions on rocks and minerals, their occurrence and genesis; lectures by specialists in different fields of geology. movie and slide presentations; and field trips to study nearby earth features, and local enterprises based on geological backgrounds. An invitation is presently being extended to anyone who may be interested in affiliation with the group.

Activities of the club began this week with a meeting May 9 at Tweed. Following the business meeting at which questions were discussed concerning the club's constitution, a movie was presented, titled, "The Geological Work of Ice." The information dealt with in this film was then correlated during a critique with those readily apparent glacial features of the Duluth area.

Pro tem officers elected to launch the organization are: John O. Griesbach, president; William J. Gelineau, vice-president; Charles W. Lindberg, secretary-treasurer. A constitution committee consisting of Lindberg, Bryce Johnson, Gelineau and Griesbach will draw up by-laws for presentation at the next meeting.

Faculty members serving as advisers are: Dr. R. L. Heller and Dr. B. C. Netschert—The UMD Statesman, May 12, 1950.

New Jersey Mineralogical Society

At the annual business meeting in May the following officers were elected for the coming year:

President, Neil A. Wintringham; Vice-President, Carl A. Bieling; Vice-President, Paul Robinson; Secretary, George F. Shoemaker; Treasurer, Ross F. Horn.

Board of Directors, 1950-51: To 1954, L. A. Murphy; To 1953, G. Raymond Stilwell; To 1952, Robert R. Goodrich; To 1951, Joseph D'Agostino.

The Society meets the first Tuesday evening of the month at 8:00 A. M. at the Public Library, Plainfield, N. J.

Los Angeles Lapidary Society

The May meeting of the Los Angeles Lapidary Society was highlighted by a very informative talk and illustrations by "Clemente" on how to finish gem stones so they can be mounted without chipping or breaking. Gems are too often ruined by being sharp or having unsupported edges at the girdle line. This information will save many a gem and the disposition of the ring setter.

The desire of adventure is present in each of us.

Jeepherders of the Los Angeles Lapidary Society are mechanized replacement of the burro and canteen, they travel to remote places of interest to all adventurous people. Many interesting discoveries and good locations of gem material have been recorded by them.

The May field trip was located by this group. There were 160 people on this trip to the Bullion Mountains, 30 miles north of Twenty-Nine Palms, Calif. A good number were welcome guests from the Glendale Lapidary and Gem Society.

Ted Schroeder, Cor. Sec.
P. O. Box 2184, Terminal Annex
Los Angeles 54, Calif.

Newark Mineralogical Society

A most informative talk on gem minerals was given to the Newark Mineralogical Society April 2nd, 1950. Dr. Roy M. Allen of Glen Ridge was the speaker and began his talk widely describing the curious lore and desire of early man to possess attractive stones and shells. To each nation and geographic location he described the people's preferences and the stones and shells available.

Dr. Allen used a large collection of his own private gem quality minerals to demonstrate and describe the high points of his talk which included almost every popular gem of interest from sea-shore pebbles to diamonds, some in crystal or matrix.

In addition to the uncut material, Dr. Allen displayed a case of assorted cabochons and facetted stones which he had cut and polished.

Thirty-Fifth Anniversary Dinner

The Newark Mineralogical Society, Inc., paused for a day in its long history to celebrate their thirty-fifth birthday on April 22nd, 1950. The occasion was celebrated with a very fine turkey dinner held at Pierre's Colittion Room, East Orange, N. J.

Mr. Albert S. White, president, welcomed the members and guests. Mr. Wesley H. Hayes was master of ceremonies and chairman of the committee which consisted of William J. Frazer, George Carpenter, Isabel Bemis, Mary Himes and Helen Newick.

Special honors were paid to Mr. John Holzman, only living founder and our secretary, Mr. Louis Reamer, the only living charter member. Mr. Reamer gave a talk on the history of the society.

The guest speaker for the evening was Mr. John Waddell of the Bell Telephone Laboratories at Whippany, N. J., who was photographic technical advisor to the joint army and navy task force which conducted the atomic bomb tests in the Pacific. Official U. S. government Kodachrome sound motion picture films showing the atomic explosions and subsequent scenes and results were then viewed.

Mr. Edwin Bemis contributed the identification cards. On each was a replica of a mineral pick hammer made from a bent nail and tooth pick, a very ingenious idea.

(Editor's Note: A sample card was sent the Editor. On it and to the left, was attached at an angle, a small thin nail and part of a wooden toothpick (head and handle of the "hammer"). The blank space to right was for a member's name which could be written in or printed by hand. A nice thin gray ribbon was fastened to the top of the card. This is a unique and most appropriate identification card.)

Mr. Morris Weeks presented Mr. Holzman and Mr. Reamer with sterling silver charm mineral pick hammers, made by Mrs. Weeks and himself.

Mr. and Mrs. Forester R. Newick donated the printing of the combined programs and membership list.

Sixteen door prizes were donated by the following members and friends: Peter Zodac, Schortmann's Minerals, Garden State Minerals, John Obert, John S. Albanese, Gene Vitali, Leonard Morgan, Albert S. White, Louis Reamer, Edwin F. Judd, Wesley H. Hayes.

Herman E. Grote, Pub. Chm.
95 Lenox Street
Newark, N. J.

May Meeting

The Newark Mineralogical Society held its regular monthly meeting in the Newark Museum at 3:00 p.m., Sunday, May 7, 1950.

Mr. White, the president, presided. Plans were discussed for a week's trip by members to quarries and mines in Maine and New Hampshire. The date and exact itinerary were to be decided upon later.

Two members of the Club gave very interesting talks. Mr. Louis Dunham spoke on the chemical analysis of minerals. He showed how a chemist finds the percentage of different elements in chemical compounds of mineral specimens.

Mr. Wilfred Welsh talked on the geological history of New Jersey. He explained the flooding and drying of the lands of New Jersey and how the process created our series of mountains and its pockets of minerals.

Mr. John S. Albanese is to speak on meteorites at the June meeting.

When we had snow all day Friday, we were sure there would be no field trip of the Society to the Griggstown copper mine on Sunday, April 16, 1950. Sunday, however, dawned bright and sunny and we had 19 cars collected at the meeting place. We are sure that we all enjoyed the sight of the forsythia and daffodils blooming along the way and the feeling of spring in the air.

The mine is on the Griggstown Coppermine Farm, about 2 miles out of Griggstown, N. J. As soon as we arrived, everyone headed for the dumps which are behind the farmhouse and all of us began pounding and digging, looking for chrysocolla and other copper minerals.

There are several holes along the tunnel which runs for a half-mile or so. There seemed to be recent excavations at one pit, probably for material for road work. Most of the good chrysocolla was found at the top edge of a hole that seemed never to have been worked before. The consensus was that the hole was the result of a recent cave-in. Some good hard material with nice color was found. Microscopic specimens of velvety malachite was found also. Before the day was over we had 25 cars and 60 collectors present. Many of our new members were present and we could say that the trip was a huge success.

Helen Newick, Pub. Chm.
61 Sycamore Ave.
Livingston, N. J.

The Cincinnati Mineral Society

The regular monthly meeting of the Cincinnati Mineral Society was held Wednesday, April 26, 1950, at 8:00 P. M. at the Cincinnati Museum of Natural History.

In the absence of our president, Mr. James Clements, our vice-president, Mr. Thomas Weibell, conducted this meeting. Mr. Edgar Sarles, chairman of the field trip committee, reported briefly on the trip to the Kelley Island Lime and Transport Co., limestone quarry at Clay Center, Ohio. Nineteen members and two guests made the long journey and were rewarded by a very successful collecting trip.

The Kelley Island Lime and Transport Co., was very kind in granting permission to visit their quarry and for providing the services of Miss May Dunn as a guide. Miss Dunn is a very charming and competent person and won the admiration and respect of everyone through her generosity in giving her time. Miss Dunn was also generous in giving specimens of fine light brown fluorite not at present obtainable in the quarry.

A vote of thanks was given to the field trip committee for their competent handling of accommodations and other necessary arrangements.

Excellent individual crystals of celestite and crystal groups were found, most striking being a double terminated clear perfect crystal of celestite found by Mr. Gschwind.

Mr. Gschwind reported briefly on a five day trip to the Southern Illinois fluorite district, in Hardin County, Illinois. This trip was made primarily for study of geologic structure of the region and to collect specimens of known minerals of the area. In examining the underground workings of eleven (11) mines the following minerals were collected: fluorite, barite, calcite, galena, sphalerite, greenockite, witherite, malachite, native copper, pyrite, chalcopyrite, marcasite, hematite, and dolomite.

A gorgeous 250 lb. specimen of light purple fluorite with crystal faces up to six inches across the flats was presented to the Museum by Mr. Gschwind.

Most interesting was the discovery of pseudohexagonal crystals of witherite (barium carbonate) in one of the mines. Mr. Gschwind by arrangement with the mining company was permitted to collect quantities to sell for the company to interested persons. The witherite is nicely green fluorescent; and is a rare mineral.

A motion was made and seconded and passed to become affiliated with the Midwest Federation of Mineralogical and Geological Societies. The secretary was asked to attend to the details of this affiliation.

Our speaker for the evening, our own Mr. Thomas Weibell, was introduced; His subject "Manganese Minerals." Mr. Weibell covered very effectively the full range of common manganese minerals, and in so doing covered thoroughly the background, uses, economic importance, tests, and composition of manganese minerals. Specimens presented in conjunction with the discussion were as follows. Ferro-Manganese, Pyrolusite, Manganese Dendrites, Wad, Psilomelane, Rhodonite, Franklinite, and Rhodochrosite, in general his discussion was as follows:

Manganese is an element that is widely distributed in small amounts; at least traces of it are found in most rocks. Most commonly occurs in silicates, oxides and carbonates. The oxides are most abundant and practically all metal is derived from them.

The ore deposits of manganese are ordinarily of secondary origin. Manganese in rock—forming silicates, thru weathering is changed to an oxide; and thru some process are at times concentrated into irregular bodies in residual clays.

Manganese minerals often occur as gangue minerals, associated with other ore bodies. A manganese ore to be of commercial value should contain at least 40 percent of metallic manganese and low percentages of phosphorus and silica.

Manganese was first used by the Egyptians in glass making. It was first used in steel making in the early 1800's and today 90% of manganese produced is used in steel making. About 94% of manganese used in United States is imported.

Chemical uses of manganese compounds include the use of Pyrolusite as an oxidizer in the manufacture of chlorine, bromine, and oxygen; as a drier in paints and varnishes, as a decolorizer in glass, and as a depolarizer in dry cell batteries.

At the close of Mr. Weibell's talk, a short question and answer period brought to a close another excellent meeting.

Charles L. Gschwind
6931 Diana Drive
Cincinnati 24, Ohio

New Jersey Gem and Mineral Society

(Passaic, New Jersey)

The New Jersey Gem and Mineral Society, held its regular monthly meeting, May 2, 1950.

Field trip for the month of April was discussed. The findings at this trip have been successful. The trip for May has been set for the 21st. The group will leave from 565 Main Avenue, Passaic.

Fluorescent Minerals and a new mineralight were discussed.

Film on Oklahoma by The Sinclair Refining Co., was shown.

The next meeting will be held June 6. This is the last meeting before the Summer.

Joseph C. Hanzl, Sec.
18 E. 2nd Street
Clifton, N. J.

North Jersey Mineralogical Society Reviews Activities, Future Plans

The North Jersey Mineralogical Society took time out at their last meeting to consider briefly, the growth of the society during the five and one-half years, since organization and to plan for the future. It is quite obvious that space must be found somewhere to enable the members to be comfortably seated. The Society meets at the Paterson Museum, Paterson, N. J.

More Space Needed

William C. Casperson, curator of the Paterson Museum, has been working on this problem for some weeks and plans to modernize the first floor of the museum by installing flat cases, thereby gaining more floor space for assembly. He also hopes to arrange an exhibit room and a work or study room in the basement to add to the usefulness of the museum.

Study Groups In The Making

In order to pursue a more intensive study of mineralogy it was suggested that study groups be formed. A questionnaire has been prepared on which members can designate the subjects in which they are particularly interested. These include: Collecting Minerals, Identification of Minerals, the Systemization of Minerals, Crystallization of Minerals, the Uses of Minerals, Cutting and Polishing Minerals.

The society will still endeavor occasionally to secure outside speakers for the regular monthly meetings.

The "Fifteen-Minute-Study Periods" which have been a feature of this year's meetings will end with the June meeting. At the May 11 meeting, Mr. Casperson took up the zircon group, the danburite-topaz group, the datolite group and the epidote group as well as the sub-varieties—axinite, prehnite and hancockite.

Orthosilicates

Some of these orthosilicates are of particular interest to this society, as for instance, datolite and prehnite, which occur throughout the First Range of the Watchung Mountains in New Jersey. In other words, they practically surround the City of Paterson. "Here is found one of the most prolific occurrences of zeolites in the world," to quote Mr. Casperson.

It may be of interest to those who value the beautiful soft green prehnite found in our quarries, to know that it was named after Col. Prehn who brought specimens of it from the Cape of Good Hope, South Africa in 1790.

Carefully Compiled Leaflets Available

A leaflet on these groups of orthosilicates was prepared by Mr. Casperson for distribution and further study. These carefully compiled leaflets distributed at our meeting now include the subjects — Rocks, Minerals, Quartz, Calcite, Feldspar minerals, Pyroxene minerals; Amphibole minerals and the Orthosilicate groups, with one on "Native Elements" for the June meeting.

Membership

Robert H. Kohlman of Cedar Grove was elected to membership.

Mrs. Kohlman, Mr. and Mrs. Robert Nebiker and daughter Virginia, of Hawthorne, John F. Rooney of Spring Valley, N. Y. Robert Breitenback of Montclair and G. Apria of Clifton were welcomed as visitors.

Spring Field Trip

The spring Field trip for May 21 was announced by the committee. It was suggested that quarry-wise collectors take a picnic lunch with them.

The last regular meeting before September will be held in the Paterson Museum, 268 Summer Street, Paterson, N. J., on June 8. Visitors are welcome.

Paterson, N. J. — *The Call*
May 19, 1950

Pomona Valley Mineral Club
(Pomona, California)

The May meeting of the Pomona Valley Mineral Club was held at Mason Hall, Pomona College, with the club's new president, B. W. Cohoon, presiding.

The Club's past president, Fred H. Smith, a jeweler of Ontario, gave an interesting talk on the subject of "Gem Stones." He showed glass replicas of the famous "Cullinan" diamond, both the stone as it appeared in the rough, and the stones which were cut from it. He displayed more than fifty Riker mounts of cabochons of various materials. A large number of these were of different varieties of jasper in which he specializes.

Nancy L. Taylor,
Publicity Chairman
845 Indian Hill Blvd.
Claremont, Calif.

Southwest Mineralogists

The Southwest Mineralogists Inc., are proud to announce their 13th annual show a wonderful success. Many new members participated this year. Their exhibits warranted every ribbon awarded to them.

This show was more successful than any other in the past, with more exhibits and interest shown. A word of thanks is due each and every member of our Society for their willingness to cooperate in making this show the success it was.

May 8 was election night and the new officers to be installed June 12 are as follows:

President, F. S. Trombatore; Vice-President, James Creighton; Recording Secretary, Marion Thomas; Correspondence Secretary, Beatrice Zehrbach; Treasurer, Cora Standridge.

The Board of Directors to consist of the above named officers and Mrs. Nettie Hake, Mr. Arthur Rich, and Mr. Walter Shirey.

Connie Trombatore
338 Pomelo Ave.
Monterey Park, Calif.

Pacific Mineral Society

Pacific Mineral Society held their April meeting the 21st and enjoyed a talk by Col. Clarence M. Jenni on "Geodes of the Warsaw formation of the Mid-West." Colonel Jenni majored in Geology and Paleontology at the University of Chicago. He has collected minerals and fossils in most of the midwestern States and hopes to move his large collection to California.

The Warsaw formation is in the Mississippi Valley area and covers sections of Iowa, Illinois and Missouri. Some of the geodes contain a crude oil and may give an unpleasant surprise of oil splashed in the face of some rockhound breaking the geode open expecting to find crystals. Geodes are not always formed in the formation in which they are found. They can be carried far from the formation area by flood conditions or rivers cutting into the strata containing geodes and washing them down stream. A layer of volcanic ash having settled on an area containing these displaced geodes would make the geodes appear to have been formed in the volcanic ash layer.

The Warsaw area is limestone which weathers to shale, the geodes may contain quartz crystals and many colors of chalcedony including pink, black, white and blue, some contain calcite while others are lined with pink dolomite.

Some sections seem to be formed of small geodes about the size of an egg while other sections appear to be larger, about the size of a person's head. In Brazil, geodes have been found that measure 30 inches in diameter. These large geodes are often lined with a drusy type of amethyst crystals several inches long.

Several members brought part of their collections for display. Included were specimens gathered from local areas on field trips and some were from all parts of the world including one case of carved jade figures and bottles, buttons and carved cinnabar.

Plans were made to visit the mineral shows being held in Southern California and the coming Federation Convention at Trona this summer.

The April field trip was planned for the pegmatite area near Ramona, Calif., to collect epidote, garnet, dumortierite; some very good gem quality epidote has been found in this area.

May Meeting

Pacific Mineral Society members and friends met May 19th, 1950, to enjoy another humorous talk by Scott Lewis on "Minerals of the 48 States." The talk was illustrated by colored slides of some of the important minerals of each state. The tour started in Maine which is very similar to California in geology structure, both having pegmatite dykes containing minerals of gem quality. New Hampshire has deposits of uranium minerals. Vermont is noted for its granites and marbles. Massachusetts has rare crystals while Rhode Island has prochlorite and calcite. Connecticut has kyanite in commercial quantities. New York iron deposits are of sedimentary structure from the Paleozoic period. The Indians used this iron substance to mix with bear grease to make their war paint. There are deposits of mica with crystals of rutile which shows asteriated stars when viewed in thin sections. New Jersey is noted for the Franklin section with its many fluorescent and rare minerals. Many beautiful stilbite twin crystals were destroyed when the basaltic rock was used for the road material for new highways in New Jersey.

Pennsylvania has iron deposits while Maryland has vivid colored limonite. The beautiful blue amazonstone comes from Virginia while West Virginia has fossils with pyrite inclusions. North Carolina has the radio-active uranium minerals, beautiful hiddenite crystals (green spodumene, not the familiar purple found in California). From Georgia comes the Staurolite or Fairy Stones so often used as good luck charms. From Florida, chalcedony has replaced the original coral and left a beautiful design of pure chalcedony. The petrified wood of Alabama is not as highly colored as that found in the Western States. In the swamps of Mississippi the iron forms limonite. From Tennessee is the Isabella hornblende and biotite mica. Kentucky, the fossils of sea mosses and limestone reefs replaced by quartz.

From Clay Center, Ohio, the fluorite and celestite is noted for flares. Indianaite, a white clay found in veins often 15 inches thick, represented the mineral from Indiana. From Illinois the most beautiful fluorite crystals from the fluorite mines. Wisconsin soil was brought down by glacier and diamonds left as the ice melted have been found in many parts of the state. There is believed to be a deposit of diamonds to the north perhaps in Canada. No list would be complete without mentioning the copper area of Michigan where 200 miles of basaltic flow contains native copper. Iron from Minnesota and geodes in limestone from Iowa.

The zinc deposits of Missouri produce very fine galena and sphalerite crystals. (Joplin region has calcite of a golden color). The quartz crystals of Arkansas have much commercial value. Sulphur from Louisiana.

Mother Nature wrote a book to describe Texas and illustrated it with fossils in sandstone. The pyrites from the Tri-State section and Oklahoma. The cockcomb marcasite from Kansas alters easily to sulphuric acid. Representing Nebraska was a petrified bison tooth. Quartz crystals from South Dakota contain sand inclusions. The geodes appear to be like cannon balls in the creek by that name in North Dakota. Montana, near Butte, the rhodochrosite is the favorite stone. Wyoming is noted for its jade and agates and aragonite.

Colorado has iron and atomic minerals and vanadinite. The olivine from the ant hills of New Mexico, are the "emeralds" that Coronado saw. The ants do the mining and bring to

the surface crystals including blue fluorite and barite crystals of gem quality. Arizona has native copper, vanadinite and cuprite crystals. From Nevada comes wire silver, sulphur with cinnabar. A worthwhile addition to any collection is a topaz from Topaz mountain in the Thomas Range of Utah. The road to Crater of the Moon in Idaho is paved with material from the lava flows containing blue dragon claws stalactites. The slide representing Washington was of zoisite. From Oregon was a thunder egg, opalite and cinnabar.

For California was benitoite with hair tourmaline crystals. Mr. Lewis's slides of scenic tours always end with a beautiful sunset, so true to form this one ended with a beautiful slide of fire opal as a climax to a very interesting visit.

The committee is busy preparing the minerals to be on display at the Convention in Trona the 17th of June. The field trip for May was to the Opal mine near Red Rock Canyon, Calif. A wonderful desert day of sunshine a little warm down in the canyon bopping away at rocks looking for the fire opal and a groan from the side of the hill would indicate that someone had broken into a pocket of beautiful red or blue opal and had little chips scattered about instead of a nice specimen to take home.

Mr. Ralph Cooley had an interesting display of minerals including a dinosaur bone from Alberta, Canada.

The June meeting will be a week late to allow members to attend the convention the weekend of our regular meeting.

Myrtle Musselman
26327 Athena Ave.
Harbor City, Calif.

Queens Mineral Society

On April 5, 1950, the occasion of our 12th Annual Dinner, we were happy to have Dr. Kurt Lowe, professor of Geology of the City College of New York, accompanied by Mrs. Lowe, as our guest speaker.

In his introductory remarks, Dr. Lowe pointed out numerous locations of geological interest in the Metropolitan Area of New York. This was illustrated by means of a map and a series of kodachrome slides. In addition to the points of interest in the immediate vicinity of New York City, the geology of the land along the Hudson River and north to Utica and Ithaca, including the Finger Lake region, was beautifully illustrated. Close-ups of small scale faults, fractures and upthrusts were shown.

Club members and guests accorded Dr. Lowe a vote of thanks for his very interesting and entertaining speech and contribution to the success of our Annual Dinner.

Georgina Lemon, Sec.
49 W. 11th Street
New York, N. Y.

Tucson Gem and Mineral Society

Several excellent programs were enjoyed by members of the Tuscon Gem and Mineral Society during April and May. On April 4, Dr. T. S. Lovering of the U. S. Geological Survey, gave a most interesting talk illustrated with slides, on the San Manuel Copper District, which has sufficient ore for 150 years of mining and will be one of the largest copper producing districts. On April 18, two movies were shown, one "Digging up the Past," portrayed the digging of fossilized Dinosaur bones in Colorado; the other showed manufacturing processes of Aluminum.

Mr. J. G. Streeter, president of the American Federation of Mineralogical Societies, addressed the society on May 2, giving a fascinating account of his Brazilian trip, and showed a large number of very fine specimens acquired in Brazil.

At the May 16th meeting, members and a large number of visitors enjoyed an extremely informative talk by Mr. Leo Hiendl, Oil Geologist with the U. S. Geological Survey, on "Prospecting for Oil in Arizona. Several members reported on trips to fluorite and ricolite locations.

Meetings are held the first and third Tuesdays of each month in room 106, Arizona State Museum Bldg. University of Arizona Campus, Tucson, Arizona. Visitors are always welcome.

David P. Record
4400 Mission Road
Tucson, Ariz.

Colorado Mineral Society

Harold T. Hofer of Denver was unanimously elected the third president of the Colorado Mineral Society at its fourteenth annual meeting, held May 5 at the Denver Museum of Natural History, Denver, Colo. He succeeds Prof. Richard M. Pearl of Colorado Springs, co-founder of the Society, who served two terms.

Mr. Hofer and his wife Vera have edited the Society's monthly bulletin, "Mineral Minutes," for the past two years. Mrs. Hofer was Chairman of the Registration Committee at the Denver convention of the American Federation of Mineralogical Societies in 1948.

The new president, a graduate of Colorado College, is a registered engineer with the Public Service Company. He is a member of the American Institute of Electrical Engineers, the National Society of Professional Engineers, and Delta Epsilon, National honorary scientific fraternity.

James Hurlbut, who led the Society's expedition to Mount Antero last summer, was elected Second Vice-President. The other officers were re-elected as follows: Ray W. Thaler, vice-president; Mrs. Jeannette Haralson, secretary-treasurer; Mrs. C. R. Williams, corresponding secretary. Harmon S. Meissner is the new member of the Board of Trustees.

Miami Mineral and Gem Society

The Miami Mineral and Gem Society ended its first year in March. The membership, which began with 13 in the organization, has grown to 60. Regular meetings have been held on the third Monday of each month, and a recently organized gem section meets on the first Monday of each month. For several months past, open house has been held each Wednesday night at the plant of one of the officers where complete lapidary facilities have been made available to members and prospective members without charge.

A highlight of the year's meetings was the talk by William B. Pitts of San Francisco, illustrated by projection of his collection of transparencies. Mr. Pitts presented a number of mineral and gem specimens to the Society and was elected to Honorary life membership.

The original permanent officers were recently re-elected to a second term and include Professor Virgil G. Sleight, Chief, Geology Department, University of Miami, President; Kathryn F. Watson, Vice-President; Henry B. Graves, Secretary; L. H. Collar, Treasurer.

A talk given during the year by Mr. Collar on titania, which he cuts to perfection, was given wide publicity particularly in view of the fact that the black sands of Florida are one of the major sources of titanium dioxide from which natural mineral the synthetic gem stone is produced.

The members voted to again enter an extensive exhibit in the 1950 International Invention and Hobby Show to be held in October in Miami's Civic Auditorium. The 1949 hobby show attracted more than 100,000 visitors and the gem society's exhibit was the outstanding attraction of the show. Visitors to Florida are cordially invited to attend the Society's meetings and to contact the Society for information relative to Florida's mineral resources and localities.

Henry B. Graves, Secretary
P. O. Box 241, Allapattah Sta.
Miami 42, Florida

Yavapai Gem and Mineral Society

"The Production of Gold" was the topic of a talk by Albert Pessin, mill superintendent at the Iron King Mine, who spent seven years in a Colorado gold mine, at the monthly meeting of the Yavapai Gem and Mineral Society held Monday evening, May 1, 1950, in the parish house of St. Luke's Church, Prescott, Arizona. He was introduced by Vice-President Ray Shire, editor of the society's publication, *The Yavapai Rockhounder*.

President Ernest E. Michael and Mrs. Michael, secretary-treasurer, were elected delegates to the convention of the Rocky Mountain Federation of Mineral Societies to be held in El Paso, Texas, June 7-9.

A special program is being arranged for Monday, July 10, when a kodachrome slide show consisting of "Beauties of the Mineral World" and "Minerals of the 48 States" will be presented. The June meeting will be held at the usual time—first Tuesday in the month.

H. G. Porter will be in charge of the next field trip to be held Sunday, May 21, to Bellemont caves, starting from the Plaza, opposite the Studio theatre, at 8 a.m.

Door prizes were won by Matt Leikes and Sally de Leuw. Quiz winners were H. Patton and John Butcher.

In his talk on gold, Albert Pessin described its physical properties—malleable, ductile, relatively soft, very heavy, metallic lustre, bright yellow in color. Because gold is very heavy it lends itself to gravity methods of concentration. "You can pan gold readily," he said, "and I suspect that several of the people in this room have tried it."

Pessin said that gold was widely distributed but in only comparatively few places of the world was it found in sufficient quantities to be of economic importance.

"Gold is found in quartz veins and in secondary deposits called placers," he said. "Gold is commonly associated with quartz and pyrite and also chalcopyrite, galena, stibnite, tetrahedrite, sphalerite and arsenopyrite. Important localities where gold occurs in veins are California, Nevada, South Dakota, Alaska, South Africa, Australia and Canada. The largest gold mine in the world is in Africa, the next two largest are in Canada, and the fourth largest in the world is the Homestake mine in Lead, S. D.

"Placer gold is the result of the disintegration of rocks containing gold either disseminated or in veins. As these rocks are reduced by the processes of erosion to sand and gravel the gold because of its high specific gravity, becomes concentrated in stream beds and is found as scales, grains and nuggets. Especially rich deposits are likely to be found where the velocity of the stream has been checked either by a bend in the stream or by some obstruction."

The speaker said that the largest producers of gold in Arizona in 1949, in order, were New Cornelia, United Verde at Jerome, Iron King at Humboldt, Magma, Copper Queen and Morenci, and these six properties produced 90% of the State's total. That brought out an interesting fact because here in Yavapai county were two of the largest gold producers in the State.

On a display table were fine collections of gem stones and jewelry owned by H. D. Patton and Harold Parsons; of volcanic specimens by H. G. Porter; and a very beautiful selection of minerals from the Tiger mine, displayed by Ernest Michael.

Harold Butcher
331 Park Avenue
Prescott, Ariz.

Santa Cruz Mineral and Gem Society

Richard A. Crippen Jr., affiliate of the Geologic Branch of the State Division of Mines, San Francisco, addressed the Santa Cruz Mineral and Gem Society at the April meeting. His timely subject "Jade in California" was of special interest to local collectors because of the nearby occurrences in southern Monterey County—and in the recently-discovered jadeite in San Benito County. Nephrite and jadeite differ considerably—in composition, hardness and gem quality. A specific gravity determination will distinguish the two minerals.

Nephrite in California occurs in bedrock at three localities, viz: Monterey, Tulare and Sonoma Counties. It comes from the fibrous amphibole minerals—actinolite and tremolite. Its chemical composition is calcium, magnesium and iron silicate. It has a hardness of 6. The Monterey jade is of the actinolite variety.

The very rare jade mineral called "jadeite," heretofore found only in Upper Burma and Yunnan in Southern China, has been recently discovered in some quantity in southern San Benito County, Calif. While the jadeite is of only fair cutting quality, the occurrence has great geological interest. Jadeite has also been found in Mendocino County, Calif., some of which is second to that found in China. The speaker displayed a remarkable specimen from this location, the color being in shades of dark to light green. Jadeite is from the pyroxene group and has a variation of color from white to black and all shades of green. Its hardness is 7. It is a sodium, aluminum silicate.

Implements, axes and ornaments of jade have been found in Washington, New Mexico and also British Columbia, Mexico and South America, but it is believed that the jade was brought to these localities and not found in situ. Representatives from Smithsonian Institute are in Mexico at the present time to study jade findings and their origins.

In the Crippen display of various forms of jade were also specimens of mylonite or black mudstone, soapstone, serpentine and asbestos. Mr. Crippen's field of activity with the Division of Mines includes map-making and identification of minerals.

A potluck dinner, election of new officers and a talk on "Blowpipe Analysis" will constitute the May program. Charles Murphy—former President of the San Jose Lapidary Society—who was scheduled for the April meeting—but unable to be present, will be guest speaker.

May Meeting

Blowpipe Analysis

Santa Cruz Mineral and Gem Society enjoyed a potluck dinner at their regular May meeting—followed by a talk on "Blowpipe Analysis" by Charles Murphy—former president of the San Jose Lapidary Society. Since the ordinary collector is not too familiar with this particular phase of mineralogy, the speaker imparted much "know how" to his interested listeners. He illustrated with a complete set of equipment, the various tests and operations necessary to ascertain at least a partial knowledge of the qualitative composition of a mineral. He said in part: "We first observe the physical properties of a mineral specimen. It is not possible, except in a few cases, to determine how much of an element is present, but, if we determine what elements are contained in our unknown, there is a reasonable certainity of identification. However, even if we do not identify the unknown we, at least, find out if the unknown contains some element of commercial value, and if so, we can afford a commercial assay." His instruments included a blowpipe, two lamps: one with mixture of 2/3 lard oil and 1/3 kerosene, the other one with alcohol, platinum wire and holder, charcoal (soft wood which should not fissure, break, smoke or ignite readily, and should leave little ash,) closed and open tubes, holder, anvil, small hammer with flat face, magnet, small test tubes, hand lens, small piece of blue glass and a mortar and pestle.

The following 36 elements can be detected by means of the blowpipe method: aluminum, antimony, arsenic, barium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, fluorine, gold, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, selenium, silver, sodium strontium, sulphur, tellurium, tin, titanium, tungsten, uranium, vanadium, zinc and water. Carbonates and silicates can also be analyzed by this method. One can readily see that a good handbook on Blowpipe Analysis by authorities such as Brush-Penfield, Butler or Dana is necessary for detailed directions for use of the various instruments.

Several Society members enjoyed a field trip to New Almaden Mine in Santa Clara County, Calif., Sunday, April 30. Crystallized dolomite, cinnabar and jasper were found. The next field trip is scheduled for Sunday, May 21, to The Pinnacles National Monument.

Newly elected officers who will serve for the coming year are: Wilson E. Thompson, President; Carl F. Becker, Vice-President; Mrs. Edna W. Becker, Secretary; Hugh S. Baird, Treasurer; A. D. Godfrey, Director.

Edythe M. Thompson, Pub. Chm.
P. O. Box 124
Soquel, California

Colorado Springs Mineralogical Society

Following are the officers for 1950 of the Colorado Springs Mineralogical Society.

President, Mr. Willet R. Willis, 1343 N. Nevada, Colorado Springs, Colo.; vice-president, Mr. Robert L. Chadbourne, 320 E. Uintah, Colorado Springs, Colo.; secretary-treasurer, Mrs. Ruth V. Wright, Box 722 Manitou Springs, Colo.

Mineralogical Society of Arizona

In southern Alberta, Canada, lies a strange land where time is turned back 15,000 years. It is a tableland of 88 square miles known as the Cypress hills. The great Keewatin glacier of the last ice age separated as it reached this 4700 foot plateau, passing around it and carrying all of its surrounding life into oblivian.

Ben Humphreys, of Cashion, gave a resume of the history of this "island in the great glacier" as published in the *Toronto Star*, at the April 21 meeting of the Mineralogical Society of Arizona.

Alien to other parts of Canada the Cypress hills contain horned toads, kangaroo rats, thread-wasted wasps, scorpions, rattlesnakes, black widow spiders and other forms of life peculiar to sub-tropical landscapes.

The flora is similar to our own desert areas. Great boulders and fantastically sculptured rocks decorate the weird plateau. The earth crust, called "pudding stone", is composed of stones and other material as hard as cement.

The area is one of the world's richest sites of dinosaur remains, so important that the Alberta government is turning it into a provincial park.

First to vanish after the great glaciers swept the country were the dinosaurs. Mammoths and mastodons survived longer. The sabre-toothed tigers, elephants and rhinoceroses clothed themselves in fairly thick fur; but eventually they too vanished.

Fossilized scorpions of the Jurassic and Cretaceous periods (approx. 100,000,000 years ago) are little different from those of the present day.

About 700 miles away, fringing the Pacific ocean, are the shore lines of the old Cretaceous sea.

North America has had 4 and possibly 5 ice ages, lasting about 50,000 years each. As yet science has found no satisfactory explanation for those cold interludes of the ice ages, lasting several million years. The *Toronto Star* states that the Cypress hills probably holds many interesting secrets of those past ages and tells what Canada was like 15,000 years ago.

May 5. MSOA held its annual election for the officers. Arthur L. Flagg, who has carried the torch for the society as president for 15 years of pioneering, declined the nomination. An experienced mining engineer, Flagg's work in the society has been invaluable. There is a saying that "If Mr. Flagg doesn't know what it is then nobody does." Probably the rock fairies lost count a long time ago of the many personal collections he has been responsible for and his assistance in identifying them. His most outstanding work is among school-age youngsters whose interest in mineralogy has increased tremendously during the past few years.

New officers elected were M. J. Benham, Science Dept. Phoenix College, president; Jim Blakely, student Arizona State College, vice-president; Arthur Flagg, Floyd Getsinger, Ben Humphreys and Louis Loerzel, to board of governors. At the next meeting of new officers and directors the secy-treas. and committees will be appointed.

At close of the meeting field trip kodachromes were shown by Herrell McDowell and R. H. Trapwell.

May Meeting

Minerals, like humans, have distinct characteristics as shaped by their environment, though they adhere to their general class patterns. This was illustrated by Arthur L. Flagg, president of the Mineralogical Society of Arizona, at their May 19 meeting. Showing kodachromes of a wide variety of exceptional minerals, he explained that students of mineralogy could determine with a good degree of accuracy the locality of a great many of them. A group of calcite crystals with a special tinting of hematite came from England. No other calcite groups look exactly like them. Fluorite crystals from Illinois, quartz crystals from Brazil and the Franklin, N. J., minerals are a few examples of what might be called "personalities" in minerals. The kodachromes of minerals, crystal groups and micro-mounts were exceptionally fine.

This was the last regular meeting of the fiscal year, October through May. Informal summer meetings are held once a month with notices as to time and place sent out in advance.

The last field trip of the season was made to Trilby wash for pegmatite minerals on May 7. A new schedule of field trips will begin in October.

Ida Smith, Pub. Chm.
2010 W. Jefferson
Pheonix, Arizona

Texas Mineral Society

The Texas Mineral Society met on the mezzanine floor of the Baker Hotel, Dallas, Tex., April 11th, 1950, at 8:15 P. M. The meeting was called to order and the minutes were read and approved. Colored slides were shown by members who had made recent trips. Mr. McIver operated the projector and showed films made by Mr. W. H. LaDew, Mr. J. D. Churchill, Mr. Otis Dozier, and Mr. R. C. McIver. There being no further business the meeting was adjourned at 10 P. M.

May Meeting

Texas Mineral Society met Tuesday, May 9th, 1950, on the mezzanine floor of the Baker Hotel. Mr. Max Drilling, a diamond cutter, was the speaker for the evening. He told us about diamonds; where they are found; how to buy and sell them; and how to cut them. This was a most interesting topic as well as a very informative one.

Fred Bentley, Secy-Treas.
5319 Alton St.
Dallas, Texas

Georgia Mineral Society
(Atlanta, Ga.)

How minerals make pottery was described and demonstrated at the May 8 meeting of the Georgia Mineral Society by Prof. Charlie Wysong of the Georgia Tech faculty. He showed how Georgia kaolin and other minerals are combined and formed into artistic shape for transparent china and pottery, and described the color-decoration process used in ceramics. Georgia's extensive deposits of kaolin produce about 80 per cent of the pure white clay mined in the United States.

The Gem Section of the Georgia Society studied "Fluorescence and the Chelsea Filter" at the April 24 meeting. Miss Janie Morris led the discussion and exhibited interesting specimens of Georgia and other minerals which fluoresced brilliantly. Members were particularly interested in seeing Stone Mountain hyalite fluoresce under the black light.

The monthly field trip group visited Graves Mountain, Ga., May 21, where some large rutile crystals and good specimens of pyrophyllite were found. This is one of the Society's favorite collecting sites and always a profitable venture. Graves Mountain has been the Georgia mineral collector's mecca for over a hundred years. The Mountain was once owned by a gem expert from Tiffany & Company of New York. Many valuable gem specimens of rutile, lazulite, kyanite, garnet and other minerals have been found at the location. The finest rutile crystals in the Museum of Natural History in New York are from Graves Mountain, Georgia.

About forty members attended the May 22 meeting of the Gem Section. Mr. Elmer Leach discussed hardness and the scratch test in a non-technical manner particularly suited to understanding of a large number of visitors and new members present. Mr. E. E. Joachim also demonstrated the use of liquids for determining refractive index and specific gravity of faceted stones. A grab bag sale of about 100 gems was described dramatically by a columnist in *The Atlanta Constitution*s

"The lady with the golden opal on her hat, the black opal on her finger and the nest of bluish opals on her lapel looked at the lady who got an opal from a grab bag and said , yearningly, "Could I swap you something for it?" The serious young man with the glasses said, "Look, Elmer, that zircon field you know about in North Carolina . . . could you show me on the map? I'm going on my vacation Friday." The pretty little French girl let out a squeal of pure pleasure "A North Georgia rub-ee!" Six people with flashlights crawled around on their hands and knees under a table looking for something they called a "tiger eye" while a little redheaded boy moaned piteously, "It's lost . . . I know it's lost."

"It was, as everybody said, a regular meeting of the gem section of the Georgia Mineral Society and if the goings-on looked a little zany that's because gemologists are happily zany people at times. Some of the time they are staid and very proper engineers, lawyers, teachers, department store workers, jewelers, secretaries, doctors, dentists and housewives.

"Then they take out after gem stones and they are a different breed, distinguishable from their fellowman by two appendages from which they cannot be separated—a tiny flashlight and a sort of magnifying glass known as a "loupe."

Practically any weekend, rain or shine, coveys of them brave snake bite and poison ivy for a field trip, usually to an abandoned emerald mine in North Carolina or some remote section of Georgia where gem stones are said to abound.

Sweet Home Rock and Mineral Society

Some 300 Sweet Home and other valley townspeople attended the Sweet Home Rock and Mineral Society silver tea and exhibit Sunday, March 19, 1950.

The exhibit, which featured local and foreign rocks, minerals, semi-precious and precious stones, was preceded by a Saturday night banquet at which local rock and mineral society officers were installed.

Officers installed were John O'Malley, president; Mel Crawford, vice-president; Mrs. Georgia Munts, secretary-treasurer.

Herman Clark, professor of geology at Willamette University, delivered a lecture on Quartz minerals to the 165 attendant at the evening meeting.

Guest speaker also was George K. Morehead, of the Salem Geological Society, who gave an original reading which described how a granite rock, now a monument at Willamette University, was deposited by a glacial iceberg which floated down the Columbia river in prehistoric times.

Other banquet entertainment was provided by Mesdames Jess Emmert, and Al Swartz, who presented two violin-accordian numbers, and Mrs. Leavitt Horner, who played two piano solos.

Special door prizes went to Mrs. Georgia Munts, who won first prize of a rock hammer; Mrs. Henry Bauman, of Eugene, who received the second prize, a pack sack; and Rev. Al Swartz, who was also awarded a pack sack.

Mrs. Muriel Knight poured at the tea, held from 2 to 4 p.m. Sunday, when exhibits were open to the public.

Exhibits included a display of Indian artifacts, by Ivan Carlson; Helen O'Malley's display of polished agates; Biblical stones, Mrs. Gladys Knowles; minerals, fluorescent minerals, polished agates, faceted stones, petrified wood and leaf fossils, Harold Derby; minerals, Helen Erickson, of Eugene.

A petrified wood collection was displayed by Elton Brutscher; display showing Brazilian agates and African malachite, local petrified wood, Fred Roner, of Albany; petrified wood and arrowheads, Chesley Keeney.

Hand-made jewelry, agates and petrified wood were exhibited by Robert Anderson; fos-

sils and agates, Harley Johnson; petrified wood and local agates. Minnie Matson; a display of mineral zeolites, R. S. Bale, Eugene.

Jade Indian hatchets found in British Columbia were exhibited by Mr. and Mrs. Henry Bauman. Faceted precious stones, petrified wood and jasper, Glen McAlister, of Salem; petrified wood, William Thompson; rocks and minerals by Mrs. Bauman, who also displayed moss agates and arrowheads.

Flower arrangements, feather corsages, paintings, and a collection of creamers were contributed by Sweet Home Garden club members. Mrs. L. C. Morse, of Albany, showed Willamette river agates, jasper and petrified wood.

Fossils and petrified wood were exhibited by Lester Munts; polished agates and wood, Ernest Rice, of Holley; polished wood and agates, William Tower; a hobby display, Ethel Tower.

Mr. and Mrs. R. L. Clark, of Liberty, displayed hammered copper trays. John Livingstone also displayed hammered copper trays.

The Federal Bureau of Mines, Albany, presented a display depicting the process of making zirconium from beach sand. Mel Crawford exhibited his Indian artifacts, polished petrified wood, marine fossils and leaf fossils from the Sweet Home and John Day areas.

Fluorescent and other minerals, and polished agates were presented by Jess Emmert; Robin White, who displayed Indian artifacts and agates, demonstrated use of a diamond saw in cutting stones.

A shell collection from South Pacific seas was exhibited by John Benson; Petrified wood limb sections by Hobart Tellefson and Otis Wilkening; arrowheads and agates, Otto Pitchford, of Crawfordsville; mineral crystals, Muriel Knight; polished agates, Mr. and Mrs. Goettsche, of Eugene.

— Sweet Home New Era

Mrs. Georgia Munts, Secretary
MR Box 692, Clark Mill Rd.
Sweet Home, Oregon

Mineral & Gem Society of Castro Valley

The Mineral and Gem Society of Castro Valley held their regular monthly membership meeting on Friday, April 14, in the Faculty Dining Room of the Hayward Union High School when Col. C. B. Branson, the Society's President, gave an interesting talk on "The Hidden Mines of Arizona and Their Legends."

The following members were appointed to the Nominating Committee to name candidates for the Society's annual elections to be held at next month's meeting: Glen P. Beach, Floyd A. Dudgeon, and F. W. Buhn.

Photographs taken of the recent Mineral and Gem Show by Mr. and Mrs. L. O. Taylor and Albert Davis were shown and orders were taken for extra copies for interested members.

Mrs. B. E. Sledge read a poem entitled "A Rock Is A Friend" in her Facts and Francies Period. Dr. A. B. Emmes won the prize drawing in the form of a polished mineral specimen which was donated by L. O. Taylor and the following new membership applications were received: A. William Bryant, Mrs. Mildred Bryant, M. Douglas Miller and Howard L. MacCalla.

The next meeting of the Executive Board was announced for Saturday evening, April 22, at the home of Mr. and Mrs. Al Breeden.

May Meeting

The Mineral and Gem Society of Castro Valley held their last regular monthly membership meeting on Friday, May 12, in the Faculty Dining Room of the Hayward Union High School upon which occasion Col. C. B. Branson, the Society's President, announced his resignation and turned over the gavel to Vice-President Al Breeden. Col. Branson left permanently for Arizona upon the close of the meeting where he will rejoin his family who preceded him earlier in the week. Mr. Breeden will serve until the Society's annual election next month. As Mr. and Mrs. L. O. Taylor, who hold the positions of Director and Secretary respectively, are also expecting to leave Castro Valley shortly, the members presented Col. Branson and the Taylors with a copy of Dana's *Textbook of Mineralogy* as a farewell gift.

The following candidates for next month's election were either named by the Nominating Committee or nominated from the floor: for President, Al Breeden; for Vice-President, Arthur B. Emmes and Wesley Gordon; for Secretary, Mrs. Alice Robb and Mrs. L. O. Taylor; for Treasurer, Mrs. Sarah Breece and Mrs. May Meyers; for Directors, Ward Lewis, Floyd Dudgeon, and Mrs. George Luce. Director Lucas Vlaardinger was appointed Chairman of the Committee on Arrangements for the Society's annual Picnic and Auction which is to be held on Sunday, June 25, at the Fire Circle in Joaquin Miller Park; Mrs. George Luce was named as official delegate to the 1950 Convention of the California Federation of Mineralogical Societies at Trona, California, June 17 and 18; and George Aahl was selected to audit the Treasurer's books in preparation for the annual election of officers.

A letter was read from Robert F. Heizer, Director of the California Archeological Survey, Department of Anthropology at the University of California in Berkeley, who requested the Society's aid and cooperation in their study of the pre-history of California. Especially desired is information in regard to the location of aboriginal quarry sites, worked out-croppings or workshop areas in the neighborhood of flint and obsidian deposits, village cave and petroglyph sites, rock face paintings and cemetaries. Mention of such findings will be included in the Annual Report of the survey

work and the persons responsible will be named. Although approximately 5,000 such sites have been discovered already, it is thought that this represents only about 10% of the probable total in the State.

Director Tom Robb discussed the recent trip which he and his party took to the Mojave Desert recently, including some beautiful colored photographs and mineral specimens. Mrs. George Luce also showed some samples of what she collected on the expedition and door prizes of some of these items were won by the following persons: Mrs. Henry Miller, Col. C. B. Branson, Glen P. Beach, Mrs. Sarah Breece, Mrs. S. A. Avery, Adam Moore, Bob Dexter, Al Breeden and Mrs. Ward Lewis.

Arthur B. Emmes, Pub. Chm.
7845 Castro Valley Blvd.
Castro Valley, Calif.

Gem Cutters Guild of Maryland

Through the determined efforts of an almost one-man drive to arouse an interest in lapidary work in Baltimore, the Gem Cutters Guild of Maryland came into being in April 1950.

Mr. James W. Anderson, who recently came to Baltimore from the West Coast, brought with him a great love of and wide experience in lapidary work. Although in his early seventies, Mr. Anderson has not spared himself in giving most generously of his time and energy, and has trained scores of Baltimoreans in this art at his home, imparting his knowledge and enthusiasm.

Through him the Guild was formed and was incorporated on May 2nd with 28 active members. Those elected to offices were: Mr. Anderson, president; David E. Wallis, vice-president, assistant secretary and treasurer; Leslie Mihm, secretary and treasurer; August Gross, program chairman; Charles W. Smith, field trip chairman.

There have been regular monthly meetings held at Baltimore City College, and also two field trips. Both trips were very successful, each member finding more than he or she could carry home. The first trip was nearby here in Maryland to look for the stone for which our state is best known, Williamsite or Serpentine, which resembles green jade. The second trip was just over the state line into Pennsylvania for cuprite. Even Mr. Anderson was surprised at the remarkable amount of easily available material in the East.

During the month of July, a downtown bank will feature in its windows work done by Mr. Anderson and numerous members of the Guild.

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Earth Science Club of Northern Illinois

Members and friends heard an extremely interesting lecture May 12, by Dr. Gilbert R. Raasch of the Illinois Geological Survey. His subject was the Geology of the Chicago Region. The lecture was followed, eight days later, by a field trip for the purpose of studying at first hand the glacial geology of the Chicago region. The field-trip was led by Dr. George Otto, teacher of Economic Geology at Northwestern University and of Engineering Geology at Illinois Institute of Technology. The lecture and the field-trip together, gave club members and visitors an exceptional insight into local geology.

At the meeting of June 9, club members and their friends heard an interesting and informative lecture on Paleobotany by Dr. Barbara Palser, Plant Morphologist of the University of Chicago.

To close the Spring activities the club went on a two-day field trip the middle of June, visiting the lead-zinc mineral region in northwestern Illinois. The trip was arranged and led by Dr. Robert Grogan and Dr. James Bradbury of the Illinois Geological Survey. Sulfide and carbonate mineral specimens were collected, and their mode of occurrence was studied. Throughout the two days a "running lecture" was given by the leaders, and through their efforts trips to an operating mine and to a concentrating plant were arranged. They proved very interesting. Saturday evening the group, about 30 members and friends, met in the State Geological Survey Offices and heard a very comprehensive lecture on occurrence of sulfide minerals in carbonate rocks. All who participated in this trip returned home with a supply of fine specimens and an insight into mineralogy such as is seldom enjoyed by the amateur geologist. On their way home several members of the party detoured to Bellevue, Iowa, where they collected a number of Lake Superior agates.

A fine set of lectures have already been arranged for the 1950-51 season, and a number of field-trips are being planned. The red-letter trip this fall will be a two-day field trip to the Devils Lake-Dells region of Wisconsin for the purpose of studying the geological formations.

The club meets the second Friday each month at 8:00 P. M. in the auditorium of the Avery-Coonley School in Downers Grove. Visitors are always welcome. Particulars can be obtained from Stevens T. Norvell, 4449 Howard Avenue, Western Springs, Illinois. Phone: Western Springs 2831.

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Editor R & M:

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